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Vol. 96 May 5, 1934 No. 18

In This Issue

Unusual Train Shed Replaces Old Structure at Chicago..... Page 646

Describes work of erecting at La Salle Street station, Chicago, a new structure of unique design which was adopted after a careful analysis of 28 preliminary studies.

Effect of Streamlining Railway Passenger Equipment Cars..... 652

E. J. W. Ragsdale, chief engineer of the Rail Car Division of the Edward G. Budd Manufacturing Company, finds that wind-tunnel determination of head-end resistance alone is not sufficient, since other vitally-important factors are the length of the train and skin friction.

Talk Standards for Railway Buying at New York..... 655

A report of discussions at a recent meeting of the New York Railroad Club, where R. L. Lockwood, director of the section of purchases in the organization of the Federal Co-ordinator of Transportation, was the principal speaker.

EDITORIALS

President Roosevelt and the Railroads..... 643
Association Activities Should Be Revived..... 645

GENERAL ARTICLES

Unusual Train Shed Replaces Old Structure at Chicago..... 646
New Deal for I. W. C. Suggested by Gen. Ashburn..... 650
Effect of Streamlining Railway Passenger Equipment Cars, by E. J. W. Ragsdale..... 652
Talk Standards for Railway Buying at New York..... 655
New Pension Bill Proposed..... 657
Accident Record for 1933..... 660
Freight Car Loading..... 661

ODDS AND ENDS..... 662

NEW BOOK..... 662

NEWS 663

The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

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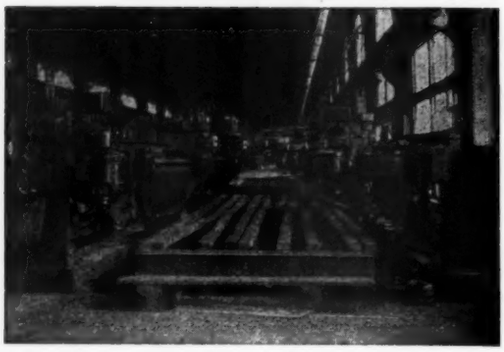

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G E N E R A L

RAILWAY AGE

President Roosevelt and the Railroads

A few days before the recent railway wage controversy was settled, President Roosevelt in a conference with the press made certain widely quoted statements regarding the railroads which could hardly inspire confidence among investors in their future. Revival of the confidence of investors in the future of industry and commerce, including that of the railroads, is, however, essential to economic recovery. Utterances of high government officials, and legislation and threats of legislation, that constantly frighten investors and retard investment, are among the principal reasons why business and employment are not expanding as rapidly as the operation of natural economic forces otherwise would cause them to. For the encouragement of investors such misleading statements of fact and principle as were made by the President regarding the railroads should be challenged.

President Roosevelt's statements were in substance that, because of excessive investment and over-expansion from 1916 to 1929, the railroads present the serious situation of too high fixed charges, and that to put employment and wages on a permanent and satisfactory basis there must be either a reorganization of their capital structure and reduction of fixed charges, or adoption of government control, to which, he said, he is opposed. From 1916 to 1932 total railway investment increased from $17,843,000,000 to $26,087,000,000, or 46½ per cent. The President's statement implied, first, that this increase of investment, and the consequent expansion of railroad facilities since 1916, have been excessive; second, that an excessive part of the increased investment has been made with capital raised by the issuance of bonds and other funded securities, and that this has caused an excessive increase in fixed charges; and, third, that if the railroad industry and employment in it are to be so stabilized as to avoid government control, indebtedness and fixed charges will have to be sharply scaled down.

Railway Expansion and Fixed Charges

What are the facts? The increase in investment between 1916 and 1932 was $8,244,000,000. It was made largely to effect economies in operation, but principally to provide adequate freight service, and it accomplished these purposes. Annual railway operating expenses were reduced $1,300,000,000 between 1920 and 1929. In the five years 1916-1920, inclusive, and again in the latter part of 1922 and the early part of 1923, there were large and prolonged shortages of transportation. Enlargements of facilities and improvements in operating methods abolished after the spring of 1923 the "car shortages" from which industry and commerce had suffered for years, and contributed greatly to the prosperity of the nation during the next seven years. No voices were raised in condemnation then, but many were raised in commendation, of these great railroad achievements. Only since the depression and the competition of government-subsidized and unregulated carriers have reduced railway traffic relatively much more than ever before in history has railroad management begun to be condemned for over-expansion of investment and capacity. Has there, as a matter of fact, been over-expansion, or does there appear to have been, principally because of the temporary shrinkage of traffic due to the depression? This question cannot be answered under present conditions. It can be answered only when business again becomes normal and government policies have been so changed as to give the railways equality of opportunity in competing with other carriers.

Suppose, however, that there has been over-expansion of facilities? Has it been accompanied by excessive increases in funded debt and fixed charges? Between 1916 and 1932 the increase in funded debt was $1,919,000,000, or from $9,917,000,000 to $11,836,000,000. In other words, the increase was less than 20 per cent, and accounted for less than one-fourth of the total increase in investment. In 1916 funded debt represented 56 per cent of total investment and in 1932 only 45 per cent of it. Interest upon funded debt in 1916 was $500,000,000 and in 1932 was $607,000,000, an increase of $107,000,000, or 21¼ per cent. Interest upon funded debt in 1916 represented a return of 2.8 per cent upon total investment, and in 1932 a return of only 2.3 per cent upon total investment. In 1916, the best year the railroads had before this country entered the war, interest was 13.5 per cent of their gross earnings; in 1926, the best year they have had since the war, only 8.7 per cent. In 1932, the worst year they have ever had, it was 18.8 per cent of gross earnings.

Conservatism of Railway Financing Since 1916

The facts given demonstrate that, even if railway facilities have been over-expanded, this has not been accomplished by the excessive increase of funded secur-

ities or interest since 1916. The fact is, that never in their history have the railways so conservatively financed their capital expenditures as during the period mentioned by President Roosevelt, and that never has their total capitalization been so conservative in proportion to the amount of their investment and the capacity of their facilities as now. During the period since 1916 the great bulk of railroad improvement and expansion has been made from earnings and has not been capitalized. As already stated the increase in investment between 1916 and 1932 was $8,244,000,000. The increase, meantime, in the total amount of all railroad securities—including stock—outstanding in the hands of the public was only $2,561,000,000, or less than one-third of the increase in investment. Obviously the two-thirds of the uncapitalized investment made since 1916 must have been made from earnings.

Returning now to fixed charges, how much has the increase in them since 1916 affected, and how much does it now affect, employment and wages? The increase of $107,000,000 in the interest on funded debt in 1932 over 1916 was equivalent to only 3½ per cent of the total wages paid in 1929 and to about 6 per cent of the total wages paid in 1932. Assuming other things would have been equal, these figures certainly do not indicate that the railways could have paid much higher wages than they did in 1929 and in 1932 if there had been no increase in their interest on funded debt since 1916.

But other things would not have been equal. The increased investment effected partly with borrowed capital enabled them to make large economies in operation which in turn enabled them to pay higher wages per hour in 1929 and in 1932 than they otherwise would have been able to pay. These economies were made partly by a reduction of employment, but the economies in operation made prior to 1916 were accompanied by increases of employment, and they probably would have been in the period of prosperity ending in 1929, if, largely because of the competition of government-subsidized and unregulated carriers, railway traffic had not failed to increase as it did previously to 1916.

Railway Securities and the Commission

There is another fact bearing upon the financing of the railroads during the last fourteen years that cannot fairly be disregarded in considering the way in which they and their security-owners should be dealt with by the government in future. The Interstate Commerce Commission, by the terms of the Transportation Act, has been empowered since 1920 to approve or disapprove of all proposed issues of railroad securities. Of the $12,000,000,000 of funded securities now outstanding, about 44 per cent, or more than $5,200,000,000, have been issued since 1920 with the Commission's sanction, either to refund old securities or to raise new capital. The present national administration has caused, and is still causing, an unprecedented increase of government supervision of business upon the assumption that government officials will be fair and wise enough to create a planned prosperity which will be much better and more lasting than past prosperity. The Interstate Commerce Commission is the oldest, and presumably the wisest, government body created to supervise and plan for business. If it should be condemned now for having unfairly and unwisely allowed the railways to issue so large a part of their funded securities, with what consistency can the Roosevelt administration ask the public to believe that other government bodies will regulate business with wisdom and foresight?

An Issue of Honesty

The foregoing facts demonstrate that there has not been since 1916 an excessive increase in railroad indebtedness and fixed charges in proportion to total investment, or to the enlargements and improvements of service effected, or to the operating economies accomplished, or to the wages paid. It does not follow that the indebtedness and fixed charges of the railroads as a whole and especially of some individual railroads, are not too large. As a matter of fact experience during depressions, both before and since 1916, has shown that they are too large, although this is principally due to financing done prior to 1916, and not since, as implied by the President. The indebtedness and fixed charges of many railroads should be reduced in future, not to enable them to employ more men and pay higher wages under normal conditions, but to enable them and their employees to stand better the strain of periods of depression.

It is quite possible, however, to believe that plans should be adopted for reducing railway indebtedness in future and, at the same time, not to believe that these should be plans for arbitrarily scaling down their indebtedness either now or in future in disregard of the legal and moral rights of their security owners. When a railroad has become bankrupt owing to bad past financing and to natural economic developments, its creditors must expect to take losses along with its owners. On the other hand, there could be no justification, either in economics or morals, for the adoption by the management of a solvent railroad, even with government encouragement and backing, of any policy for scaling down its indebtedness or fixed charges excepting that of using part or all of its net income to reduce them.

Both past and current experience show that, under normal business conditions, with a consequent normal traffic and with reasonable rates and wages, most of the railways can earn income largely in excess of the amount required to meet their present fixed charges, and to try to reduce their indebtedness excepting by gradually paying it off would be to destroy credit which they will vitally need in future. Furthermore, it would not be honest. To make a point of honesty now, in view of many things that have been done recently by the government or with its sanction, may seem old-fashioned, but it has not been long since honesty was regarded by many persons not only as the "best policy,"

but even as a virtue. This old-fashioned view of honesty is still held by many investors, and if the railways remain under private ownership, for their managements to make a record during the present trying period, not only of efficiency, but also of honesty, will be helpful to them in attracting investors in future.

Is There Danger of Government Ownership?

But, it may be said, there is implied by the President's statements a threat of government control or government ownership if the railways do not, as a part of the present general program of "reform," rapidly so scale down their indebtedness and fixed charges as to enable them better to stabilize employment and wages. Whether such a threat is or is not implied, business managements and investors should not let themselves be much influenced under present conditions by such statements. They are obviously intended to appeal to labor leaders and those wage earners who accept the socialist-labor doctrine that industry should be conducted almost solely in the supposed interest of wage earners, and, consequently, in disregard of the rights and interests of investors. The consistent application of this doctrine would make the continued existence of our present economic system impossible. Its challenge to all private ownership and private enterprise should, therefore, be squarely met. Private business should stand up and fight it, and not run away from it.

For the railroads to attempt to scale down their indebtedness in disregard of their creditors' plain rights would be to destroy their credit, and this would make government ownership inevitable. The only way they can avoid government ownership is by strongly resisting, with the aid of other business interests, every policy which tends to undermine the earning capacity of private business, including railroads, and the confidence of investors in its future.

Association Activities Should Be Revived

The railway industry has long been served, and served constructively, by a group of associations, each composed of supervisory officers of common interests and responsibilities. In general, membership in these associations has been individual and unofficial. The results of their deliberations, while informative, are likewise unofficial.

Largely because of the enthusiasm and interest engendered by the voluntary nature of their activities, many of these organizations have made marked contributions to the improvement of practices in their respective branches of railway service. They have afforded opportunity for the consideration and discussion of new and improved methods and materials. Similarly, they have done much to raise the morale and increase the enthusiasm of those attending the meetings by reason of the inspiration that comes from contact with one's fellows.

For three years, in compliance with the expressed request of the railway executives, most of these associations have virtually suspended activities. The voluntary co-operative work of these organizations is, therefore, at a standstill. As a result, they are disintegrating, some to the point of dissolution.

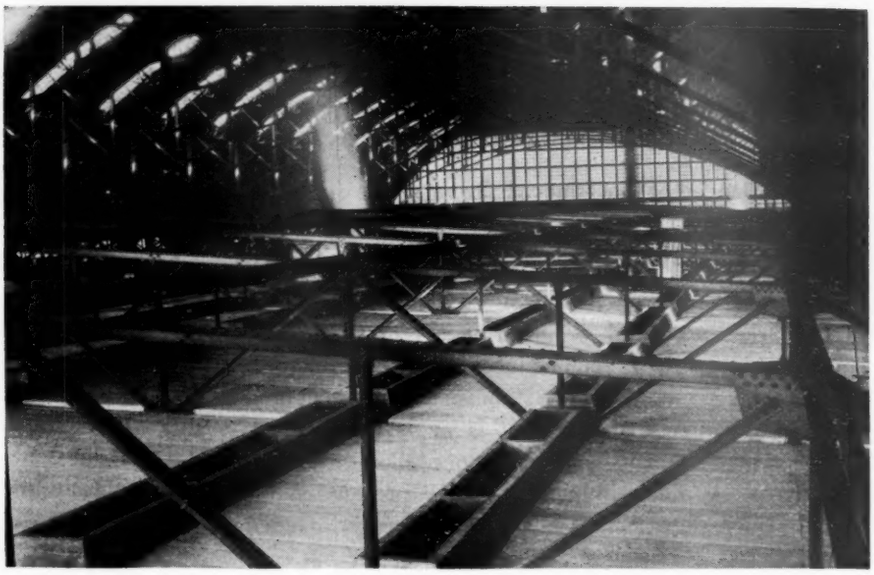
At the time that these associations were requested to curtail or suspend their activities, the railways were plunging deeper and deeper into the depression and the bottom was not in sight. Heroic measures were justified by the emergency. The task then was to meet the urgent needs of the moment, with little thought of the future.

Now conditions are changing—the railways are on the upgrade. Traffic and earnings are improving and better days are in sight. Furthermore, as the railways begin their climb back to normal conditions, supervisory officers face the problems of reconstruction, of taking up the vast accumulation of deferred maintenance, of adapting their methods to the changed conditions, and of rebuilding their organizations—probably along lines differing widely from those of 1929.

The most efficient solution of these problems calls for the freest possible exchange of information, not only among those at the top who formulate policies, but also among those down the line who must convert these policies into detailed methods of working. Conditions demand the highest possible efficiency to meet the new problems of today and to prepare for those of tomorrow. There is need for knowledge. There is need also for enthusiasm and inspiration.

The railways are now facing the necessity for reconstructing their facilities and their methods just as definitely as they did in 1920. One step to this end is to lift the ban against those associations which have made outstanding contributions in the past and to encourage them to resume their activities. To such organizations as the Railway Fuel Association and the Air Brake Association in the mechanical field, the Roadmasters Association and the Bridge and Building Association in the maintenance of way field, and the Superintendents Association in the field of transportation, and similarly constructive organizations in other branches of railway service, encouragement should now be given in order that they may again arouse the interest of their members in better ways of meeting their problems.

Railroading is outstanding among industries by reason of the freedom with which helpful information is exchanged. That method or device which effects economies on one road should be equally efficient on another. There never was a time when the interchange of information was more greatly needed. The railway associations possess vast potentialities in this direction. Their past contributions testify to this fact. The time has come when they should be re-established as a recovery measure.



A View Over the Top of the New Train Shed—Preparations Are Now Being Made for the Removal of the Old High Shed

Unusual Train Shed Replaces Old Structure at Chicago

New frame required only 39 per cent as much steel as was employed in the old enclosure

A UNIQUE design of train shed, which was adopted after a careful analysis of 28 preliminary studies, has just been completed at the LaSalle Street station, Chicago, where it replaces a shed of the high "balloon" type. It was necessary to retire the old shed because of the excessive cost of maintenance in the face of a rapid rate of corrosion and the extremely unfavorable working conditions imposed on the forces engaged in its repair.

The LaSalle Street station, completed in July, 1903, was the last large terminal in America to embody a train shed of the high enclosed type. But the limited width of the site, between two flanking streets, imposed such severe restrictions on the widths of platforms, that it was deemed necessary to adopt a type of shed without supporting columns in the platforms. This old shed, which is now to be removed, consists of pin-connected simple-span crescent trusses, with a span of 212 ft. 4 in. center to center of supporting columns. The bottom chord is 60 ft. above the track level at mid span, while the monitor supported on the top chords rises to an additional height of 44 ft. The trusses are spaced 30 ft. 3 in. center to center, and the roof consists of reinforced concrete precast tile. As the track floor is one story above the street level, the spaces between the columns were enclosed with brick curtain walls and large windows.

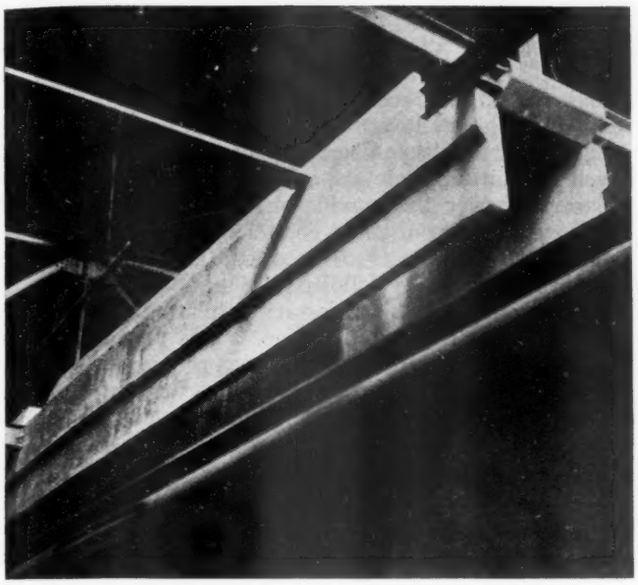
Many Limitations Imposed

Obviously, the limitations imposed in the design of the old train shed were found equally restrictive when efforts were made to develop a more satisfactory shed to replace it. The station accommodates 11 tracks, 10 grouped in pairs at 12-ft. centers, with the remaining track adjacent to the east wall. However, with a total available clear width of 208 ft. between side walls, the spacing of tracks across the island platforms was restricted to 24 ft., leaving a clear space of less than 13 ft. between the sides of cars on the adjoining tracks, which was obviously insufficient for a design of train shed embodying the general use of supporting columns in the platforms. Studies of clear-span designs demonstrated their impracticability. Arch or fixed-frame designs embodying an appreciable rise failed to eliminate the objectionable features of the old shed, while efforts to develop a low shed of this type introduced structural problems that could be overcome only at prohibitive costs.

The design adopted, which may be characterized as a practical compromise, introduces a line of intermediate supports in the location where they are least objectionable, namely, in the platform that divides the tracks into two natural operating groups, that is, the six west tracks normally used by the through trains and the five east tracks used by suburban trains. This design, the development of which involved no little ingenuity, possesses a number of advantages.

Advantages of the Design

This design has a low roof, permitting of a minimum depth of smoke slots over the tracks. The structural elements entailed no difficulties in fabrication or erection. The construction operations involved a minimum of interference with the use of the station tracks, no more than two being taken out of service at a time. The columns supporting the old shed were utilized as the



One of the Haydite Concrete Smoke Troughs—The Roof Tile Had Not Been Erected when this Picture was Taken

outer supports for the new shed in such a way that the new shed could be completed before removing the old one. The intermediate supports are confined to the center line of one platform and these are limited to 11 columns spaced about 60 ft. 6 in. center to center.

The primary element of the new shed construction consists of transverse trusses spanning between the old side wall columns and the new intermediate support, and as these side wall columns are 30 ft. 3 in. center to center and the interior columns are spaced 60 ft. 6 in. center to center, only every second line of transverse trusses could be supported directly on an interior column. The alternate trusses are supported at their inner ends on longitudinal trusses that span the 60-ft. 6-in. space between the columns.

The transverse trusses, which have a span of 120 ft. 10½ in. on the west side and a span of 94 ft. 1½ in. on the east side, have a height of 11 ft. 5¾ in. at their inner ends where they frame into the columns or the longitudinal trusses. But their height reduces toward the outside ends, and end posts are introduced in the outer panels so that only the bottom chord is supported on the side wall columns.

It was necessary to adopt this arrangement to avoid interference between the new and the old trusses at their connection with the columns. The support for the new trusses consists of a plain bearing on a structural steel bracket welded to the web of the old column. A welded connection was adopted because of the extreme difficulty of providing an adequate riveted connection. The ends of the trusses were also welded to the brackets for the purpose of transmitting to the new trusses the outward thrust to be developed at the tops of the columns at the time that the trusses of the old shed are being cut apart for removal.

The transverse trusses embody no marked departures from usual roof truss practice. Paired angles are employed for the top chords and web members, while the bottom chords consist of two channels applied flat against the single plane of gusset plates, with side plates in the panels of heaviest chord stress. The framing was so arranged that the bottom chord panel points are coincident with the center lines of the smoke slots. The longitudinal trusses are distinctive in the use of 10-in. CB sections for all members, drainage holes being punched at intervals in the webs of the top chords. Lateral bracing of the top chords of the transverse trusses was provided by introducing struts connecting the top chord panel points of adjacent trusses, supplemented by X-bracing between the top chords of the two trusses at each end of the shed, and between trusses at two intermediate points.

A Concrete Tile Roof

The transverse trusses serve as the support for smoke slots over each track and a Federal reinforced concrete tile roof which is supported at the elevation of the top of the bottom chords. These roof tiles span transversely between I-beam purlins and ledges provided for the purpose on the outside faces of the reinforced concrete curtains that form the sides of the smoke slots. Both the roof tile and the smoke slot walls were constructed of Haydite concrete having a weight of about 100 lb. per cubic foot, as a means of limiting the load to be carried.

The roof tiles were supported at the level of the bottom chords instead of the top chords for the purpose of permitting a minimum depth of the smoke slots, both to increase their efficiency in removing the smoke and to cut down the weight to be supported by the trusses. This, however, imposed a complex problem of drainage which was solved in an ingenious manner. It was found most convenient to dispose of the water through the downspouts in the side walls, that had been provided for the drainage of the old shed roof, and lateral drainage to gutters along the two sides was afforded by so placing the trusses that the bottom chords at the side walls are 2.6 ft. lower for the long span and 2 ft. lower for the short span than at the connection with the row of interior columns.

The next step was to overcome the barriers to the lateral flow of the water on the roof, introduced by the projecting tops or parapets of the smoke slots, which was done by interrupting the continuity of the slots at each transverse truss and providing gutters at these points on both sides of the trusses. To direct the water to these gutters, the supports for the roof tiles over the 30-ft. 3-in. span between trusses were cambered five inches.

The Smoke Slots

The smoke slots are formed by concrete curtain walls with inside faces 2 ft. 11 in. apart that flare inward above the roof to reduce the width of the opening at the top to 1 ft. 11 in. They are supported across the span of 30 ft. 3 in. between trusses by encased steel trusses of the Truscon "Weltrus" design. These are composed in some cases of 5-in. channel chords with ⅞-in. round bent rods for web members, and in other cases of double

A General View Taken Before the Roof Tile Were Installed

3-in. by 3-in. by ⅜-in. angles for the chords with double 1¼-in. by 1¼-in. by 5/16-in. angles for the web members, all connections being welded. These welded trusses were all furnished with a five-inch camber.

The smoke slots were all constructed with their bottoms 16 ft. 2 in. above top of rail, but because the bottoms of the trusses were placed on a slope from the intermediate line of columns to the side wall columns, and because the tracks at the outer end of the train shed are 15 in. lower than at the end adjacent to the station building, whereas the new shed is level in the longitudinal direction, it was necessary to vary the depth of the smoke slot walls to maintain the fixed clearance above the top of rail. As a result, the total depth of the slots varies from a minimum of 3 ft. 3 in. to a maximum of 6 ft. 3 in., this variation occurring entirely in the aprons, from 4½ to 5 in. wide, that extend below the encased trusses.

The two walls of the smoke slots are tied together at the third points of each span by a reinforced concrete diaphragm 5-in. wide and at each transverse truss by the concrete encasement that completely surrounds the bottom chord and provides a 12-in. gutter on each side of the truss. The bottoms of these encasements and the diaphragms are sheathed with cast iron blast plates ⅜ in. thick. The primary objective in these interruptions in the continuity of the smoke slots is to break up down drafts that would tend to cause the smoke to re-enter the shed enclosure. However, another important purpose was to provide adequate protection against corrosion of the bottom chords of the transverse trusses. The encasement was carried up high enough to provide an adequate curb between the gutters provided on each side of the trusses. Where the web members emerge from the encasement they were coated with mastic, prior to the placing of the concrete, to minimize the hazard of corrosion at that point.

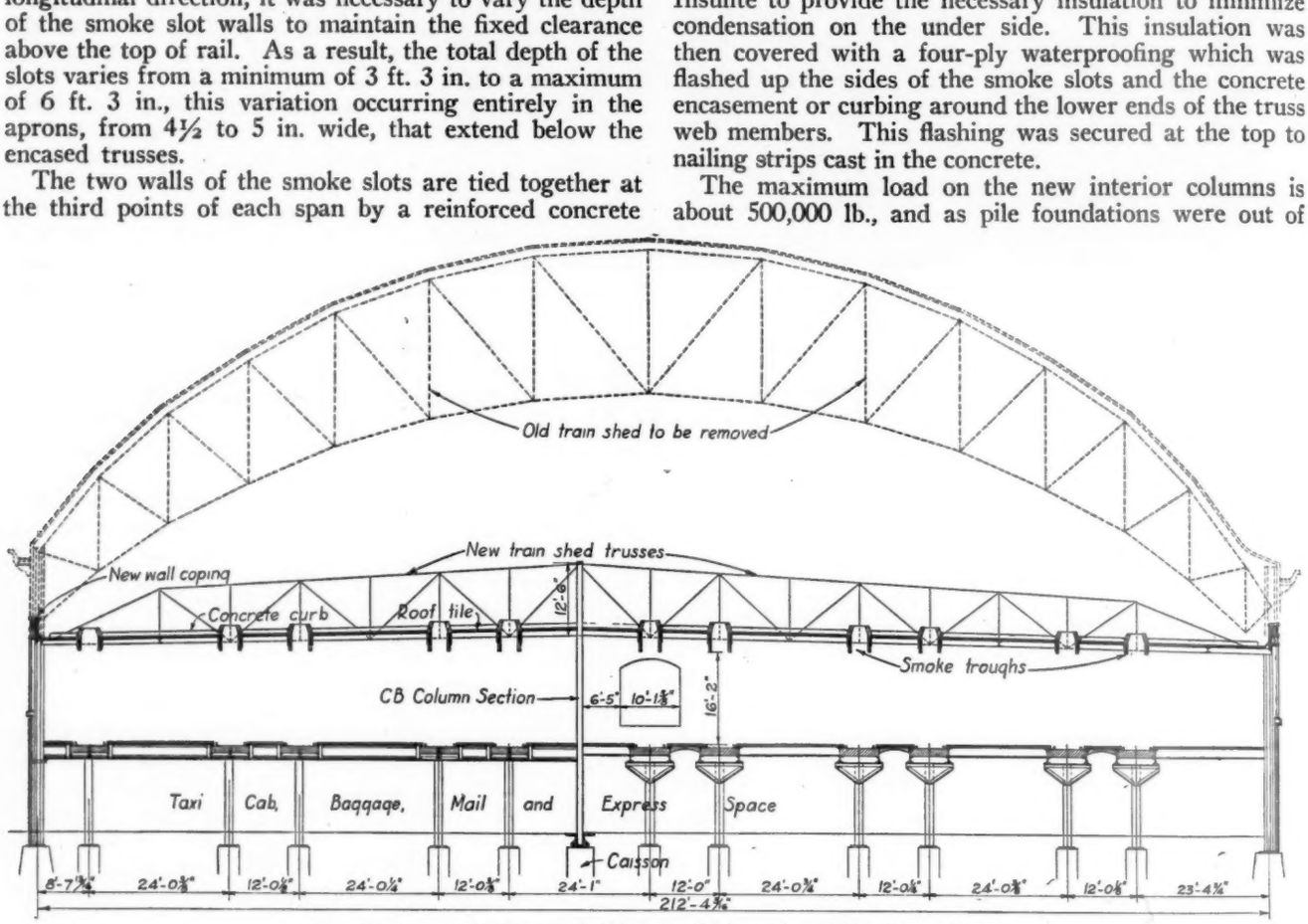
The Roof Tile

The roof tiles are of a channel section, designed for use in spans up to 10-ft. 2½-in. center to center of bearings. They are 17⅞-in. wide, but occupy a width of 18 in., with ⅛-in. joints filled with asphaltic cement. The tiles are 1 in. to 1⅛-in. thick, with flange projections of 3½ to 4 in. and are reinforced with a ⅞-in. round rod in the bottom of each flange, and electric welded mesh reinforcement in the face. These tiles weigh about 14-lb. per square foot of roof surface and developed an ultimate capacity of about 210 lb. per square foot over the maximum span length. The roof tiles cover an area of about 85,000 sq. ft.

The entire roof was covered with one ply of fabric waterproofing, to be followed by a one-inch layer of Insulite to provide the necessary insulation to minimize condensation on the under side. This insulation was then covered with a four-ply waterproofing which was flashed up the sides of the smoke slots and the concrete encasement or curbing around the lower ends of the truss web members. This flashing was secured at the top to nailing strips cast in the concrete.

The maximum load on the new interior columns is about 500,000 lb., and as pile foundations were out of the question, consideration was given to the use of natural foundations. But these called for such large footing areas as to entail an amount of excavation and back filling as to have introduced excessive interference with the occupancy of the ground floor level for a baggage room and for other purposes. The only alternative was to support the interior columns on concrete piers carried to hardpan at a depth of from 63 to 73 ft. below street level. These piers are 4½ ft. in diameter, belled at the bottom to 10½-ft. and built according to the Chicago or curbed-well method. The work was handled from the baggage room level which is from 14 to 15 ft. below track level. The excavation was started on September 28, 1933, and the last concrete was placed on October 16. A total of 14,631 cu. yd. of concrete was required.

The columns, which are 12-in. 126 lb. CB sections, extend from the top of the piers, three feet below the baggage room floor level, to the top chords of the trusses and were lowered through holes cut in the track-level floor. The center line of the row of columns is coin-



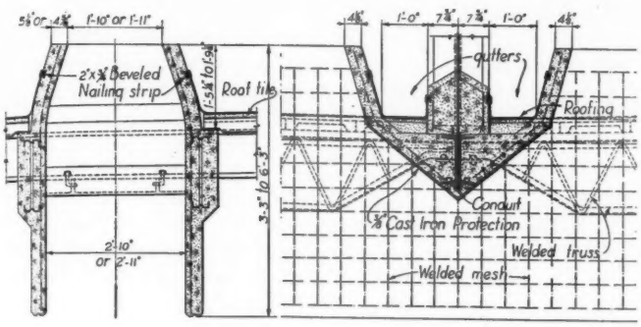
Cross-Section of the New and Old Train Sheds at the LaSalle Street Station

cident with a string of longitudinal floor beams, which were flame cut flush with both sides of the columns and welded to the latter after they had been erected.

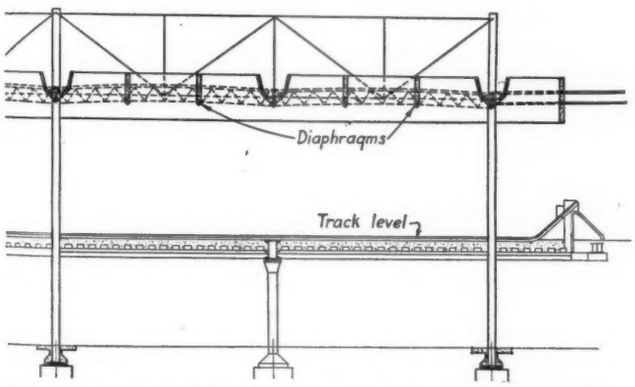
All other trusses were delivered and erected in one piece, and owing to their height they had to be shipped on special low flat cars. The transverse trusses were erected at night between 11 p.m. and 6 a.m., when all the tracks and one side or the other of the row of interior columns could be cleared. The erection of the steel, which totaled 733 tons, was started on December 11 and completed on March 28.

Difficult Concreting Problem

One of the most formidable problems encountered in this project was the development of practical methods for the construction of the 6,085 lineal feet of concrete smoke ducts. The extensive variation in depth served to complicate the form work, while the depth of these



Details of the Smoke Trough—Typical Cross-Section and Longitudinal Section at a Transverse Truss

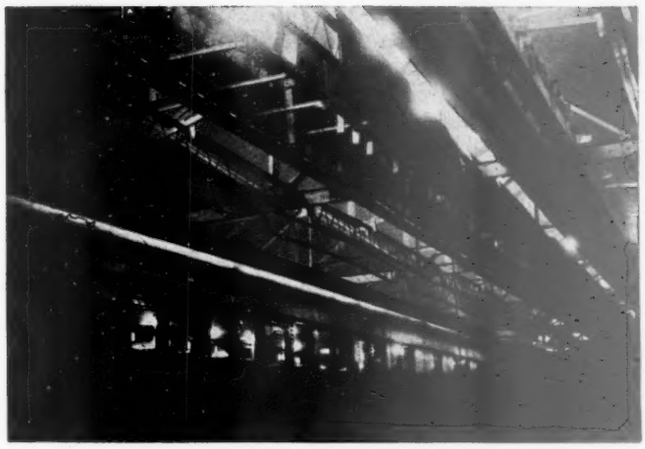


A Partial Longitudinal Section Through One of the Smoke Troughs, Showing the Longitudinal Truss Over the New Line of Columns

walls, up to 6 ft. 3 in., together with the limited thickness, raised serious questions concerning the placing of the concrete, which was further complicated by the fact that the concrete had to enter the forms at a level ranging from 17 ft. 7 in. to 22 ft. 5 in. above the track level. All of these obstacles were overcome in a most ingenious manner.

The contractor provided complete forms for the full length of two smoke slots. They were fabricated in a mill to fit the dimensions of the ducts with the deepest walls, namely, those directly adjacent to the longitudinal trusses. After completing the concrete work on these two ducts, the forms were taken down, and cut off at the bottom to fit the dimension of the next smoke duct on each side and reused, this process being repeated until the ducts over the two outside tracks had been completed.

The forms were constructed of plywood in sections about 10 ft. long, which, with the attached 2-by-4 studs



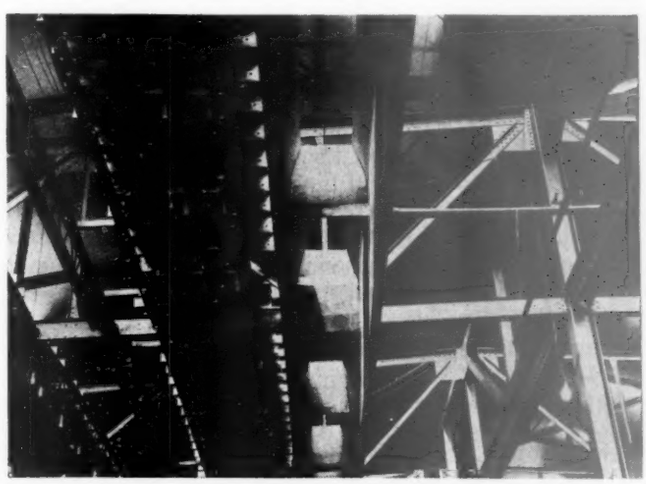
A Construction View, Showing Welded Trusses, Forms, and Staging for Smoke Trough Construction

at 18-in. centers, weighed not to exceed about 80 lb. and could easily be handled by two men. The manner in which the forms were assembled and braced is shown in a small sketch. No shoring was necessary as the weight of the forms and the concrete was carried on ¾-in. bolts suspended by hooked ends from the welded truss reinforcement. The bolts, which passed through the bottom of the forms, were cut off with a cold chisel after the forms were removed. The horizontal form bolts were in three pieces, connected by means of threaded cone-shaped sleeves so that they could function both as ties and as spacers. When the forms were removed, both the outer sections of these bolts and the cones were screwed off and the recesses left by the cones were patched with Keenes cement.

The work of placing the reinforcement and erecting the forms was done from the tops of box cars, assigning different cars to separate stages of the work and moving the cars from one panel to the next with the aid of a motor-operated winch and a ⅜-inch cable. Thus, one car was used for the placing of the suspender bolts and the bottom forms, the second car for the erection of the outside forms, the third for the placing of the mesh reinforcement, and the fourth and fifth for the erection of the inside forms.

Use High-Early-Strength Cement

The concrete was made in 1—2½—2½ proportions, of Incor cement, and fine and coarse Haydite aggregate,



Looking Up Through the Trusses and One of the Troughs—This View Shows the Staging Used for Wheeling Concrete for the Troughs

Pumicite being added to the extent of 40 lb. per cu. yd. All of the fine aggregate passed a No. 4 sieve and about 15 per cent was retained on a No. 100 sieve, while all of the coarse aggregate passed a ¾ in. mesh and was retained on a No. 4 sieve. Because of the porous nature of this material it was thoroughly saturated in the cars before delivery to the mixer, but because of difficulty in controlling the degree of saturation, extreme care had to be exercised in determining the requisite amount of mixing water to obtain the desired slump of four inches. The water valve on the mixer was set to deliver 7½ gal. per bag of cement, but it was frequently necessary to reduce this proportion, in some cases to as low as 3¼ gal.

Test cylinders developed an average minimum strength of 2,500 lb. per sq. in. at 28 days, with occasional values of as much as 3,300 lb. The strength at two days was about 1,000 lb. and at seven days about 1,700 lb.

A ¾-yd. concrete mixer was mounted on a flat car served by the requisite number of cars of concrete materials. From this mixer, the concrete was delivered to a small steel hopper supported on the station platform by means of steel legs at such an elevation that the concrete could readily be chuted into wheel barrows spotted alongside. After being loaded, the barrows were wheeled to a portable elevator operated by an automatic electric hoist, and raised to the level of portable plank staging supported on the bottom chords of the trusses along both sides of the forms. Portable hoppers were provided for convenience in dumping the wheel barrows into the forms, because of their very limited width. This same condition led to the use of five Syntron electric form vibrators, which proved effective in obtaining a thorough flow of the concrete against the forms and around the reinforcement in the confined space.

The concrete work of the smoke slots was started on December 11 and completed on March 28, and was therefore a winter job, demanding adequate protection of the concrete from low temperatures. Accordingly, the concrete materials were heated to insure a temperature of 80 deg. F. for the concrete as it left the mixer, and live steam released under a tarpaulin cover placed over the forms, maintained the concrete at a temperature of 50 deg. for 24 hours after it was placed.

The concrete gang consisted of a foreman and 34 men. After the work was well under way, this gang placed about 8 cu. yd. per hr., but this was stepped up to about 11 cu. yd. before the work was completed. About 1,700 cu. yd. of Haydite concrete were required for the entire job.

The new shed is now substantially complete, and work will be started shortly on the removal of the old high shed. After this has been done, the side walls will be removed and the side columns will be cut off to a point just above the elevation at which the new transverse trusses are supported on them. A suitable coping will then be provided to top off the wall at the lower elevation.

The track space covered by the new train shed will be lighted by 200-watt lamps enclosed in Holophane vapor-proof fixtures, suspended over the center of each platform at a longitudinal spacing of 15-ft. 1½-in. The selection of the fixtures, known as O2338-AL, and the determination of the spacing and elevation above the platform, about 15 ft., to insure a uniform distribution of the light and provide effective illumination of car steps, were based on the results of extended tests.

The shed was designed by the engineering departments of the Rock Island Lines and the New York Central Lines, joint owners and users of the station, the design and construction were under the direct supervision of I. L. Simmons, bridge engineer of the Rock Island Lines, the design being carried out by T. C. Frederick, and the construction by H. Bober, while A. T. Hawk, engineer of buildings, served in an advisory capacity. The entire construction was handled under a general contractor, the Ellington Miller Company of Chicago. The Haydite concrete roof slabs were furnished and placed by the Federal American Cement Tile Company of Chicago. The caissons were placed by the W. J. Newman Company of Chicago. The steel work was fabricated by the American Bridge Company.

New Deal for I. W. C. Suggested by Gen. Ashburn

WASHINGTON, D. C.

THE annual report of the Inland Waterways Corporation, always an amusing document, this year takes on a note of sadness. Some railroad men may still derive an occasional smile from it, but those who have tears should prepare to join General Ashburn in shedding them now. For the corporation, having a "mission" to demonstrate the possibilities of "low-cost" transportation on the Mississippi river system, is finding itself out-demonstrated not only by the railroads but also by private water carriers that, having no such mission, its report says, have been taking away its heavy sugar, cotton, and other desirable traffic by rate reductions to such an extent that its officers are raising the serious question as to whether they should not embark upon a new rate-cutting program of their own.

The question is merely raised and not specifically answered, because another suggestion is also offered that a restatement of the present policy of Congress with reference to rail, motor, highway, air and pipe-line transportation is highly desirable at the present time and that the Interstate Commerce Commission might be reorganized and given jurisdiction to settle controversies between the various forms of transportation.

It appears that in the past two years the interests of the corporation and those of its shippers, in spite of its mission, "have been subordinated to a very considerable extent to the interests of the railroads and of other water carriers owned and operated by private capital" and that the corporation officials are now wondering whether they have not exercised too great self-restraint and solicitude for their competitors.

According to the report the tonnage transported by the system was reduced from 1,653,088 in 1932 to 1,605,844 in 1933, its revenues from $6,203,232 to $5,085,210, and its net income from $470,140 to $30,049. As a result, General Thomas Q. Ashburn, president of the corporation, says that "all this raises the serious question as to how far the Federal Barge Lines should go in combating destructive competition and co-operating with trucks to give the public cheaper transportation," and that "if the Inland Waterways Corporation is to create a system, it should not be handicapped by restrictions which are not imposed upon privately owned carriers, and the same real competitive conditions should govern its action as govern the actions of privately owned carriers."

Advocates T. V. A. Principles

General Ashburn has derived a new inspiration from a statement of principles announced by the Tennessee

Valley Authority to the effect that its most important consideration is to make power available at the lowest rate consistent with sound policy and that it "cannot decline to take action solely on the ground that it might injure privately owned utilities." Pointing out that the T. V. A. "was established under the New Deal and has the unqualified endorsement of President Roosevelt," he recalls that the I. W. C. also had its genesis under a Democratic administration and decides that "if it is to accomplish its mission effectively and quickly it must adhere to these principles in spite of objections from the railroads or private carriers." Had it always been able to adhere strictly to the principles enunciated, he says, "it is my fixed opinion that it would by this time have accomplished its mission."

The T. V. A. statement also includes a principle that "where there is conflict between public interest and private interest which can be reconciled without any injury to the public interest, such reconciliation should be made," but General Ashburn feels that he has been doing too much reconciling and he is now out for traffic.

From other statements in the report, however, it would seem that much of the subordination to other interests came from outside, for although L. D. Chaffee, traffic manager, says that the purpose of the traffic department may be stated "as being to afford shippers the benefit of low-cost transportation to the extent that this can be done without, to an unreasonable degree, adversely affecting the proper interests of private enterprises—carrier, individual, or commercial—and, through revenues derived from the performance of transportation service, to maintain the corporation as a self-supporting institution until the purposes for which Congress created it have been fulfilled," it is stated in another part of the report that "it is only within the last 2½ years that private operators have sought to compete with the Federal Barge Lines on traffic moving between ports which are served by the corporation, but after our cotton rates were suspended in 1931 our prestige began to wane. The corporation's purposes had been subordinated to private capital."

It is recalled that in 1931 the reduced cotton rates established by the corporation from Memphis to New Orleans were ordered suspended by the acting Secretary of War, during the temporary absence of the Secretary of War, upon representation of the railroads that this was taking cotton away from them and was injuring interior cotton compresses, and General Ashburn says that the largest cotton dealers in the South then entered into a contract with a certain carrier at approximately the same rate charged by the Federal Barge Lines, and secured a practical monopoly of all the cotton grown within trucking radius of Memphis. Later the rail lines, to meet this competition, put in reduced all-rail rates from Memphis and, he says, the Federal Barge Lines lost in 1933 the carriage of 114,600 tons, or nearly all its cotton traffic, reducing the net income from operations approximately 94 per cent of the total difference for 1932 and 1933. Similarly the loss of sugar traffic is attributed to a ruling of the Interstate Commerce Commission which is said to have brought about "the practical elimination of storage-in-transit privileges in connection with the Federal Barge Lines."

Deplores Ruthless Competition

J. P. Higgins, general traffic manager of the I. W. C., says in the report that "an apparently concerted determination to destroy this pioneering agency, most manifest during the year, has been seriously injurious. We have encountered more ruthless competitive methods and more harmful obstacles than ever before. Competing forms of transportation have lowered rates on practically every commodity carried by us in any considerable quantity, including sugar, cotton, sulphur, coffee, rice, tobacco, iron and steel, phosphate rock, canned goods, mill products, soap, wood, pulp, etc. They did not overlook even the pecans, of which we handled about 4,000 tons in 1932, but only a few cars this year. In numerous instances we were not permitted to join in the depressed rates on a differential basis and were totally eliminated from any possibility of participating in the traffic, which, of course, also deprived the producer and the consumer of the benefit of our lower-rate services.

"The loss in sugar tonnage in the lower Mississippi division alone is far in excess of our entire decrease in system traffic for the year. Many privately owned river carriers are giving preference to this commodity, but changes in our detention charges and the narrowing of our differential and the forced cancellation of some warehousing privileges are contributory elements; 30,000 tons from one refinery heretofore assigned to us were diverted to another river operator when we declined to adopt its practice of absorbing a charge for a part of the transportation service performed by the shipper. We were almost entirely deprived of the extensive movement of canned goods originating on the west coast."

Traffic Manager Chaffee says: "It is clear that in improving inland waterways the lowering of transportation costs has been the primary object, and I think it equally clear that the corporation was created to accomplish this purpose within its sphere of operations . . . We are to develop a transportation system which can be disposed of to the best advantage of the government. Such a system should be financially sound. We should not at this late date voluntarily relinquish so much of our traffic that the corporation may be compelled to seek additional appropriation from Congress, nor should we refrain from efforts to develop new traffic to the end that benefits of water service may be enjoyed more generally and more fully by the public. If shippers do not obtain the benefits of low-cost transportation, the purpose of Congress will have failed."

Must Make Rate Reductions

He therefore recommended "that in making rate adjustments which may adversely affect the interests of private enterprises, you definitely authorize me to consider and treat the interests of such enterprises as subordinate to the interests and the rights of the shipping public in low-cost transportation and to the interests of the corporation. This authority would be used merely as a guiding principle in deciding the issues involved. It, of course, should not be used too drastically. However, we must make reductions in rates which, to a degree at least, may be considered drastic, if the corporation is to carry out its purpose. . . . During the past two years the interests of the corporation have been subordinated to a very considerable extent to the interests of the railroads and of other water carriers owned and operated by private capital.

"It is a well-established fact that the cost per ton-mile to a transportation agency for performing transportation service fluctuates with fluctuations in the total ton-mile service performed, but not in direct proportion. The minimum cost of operation is not reached until the agency's facilities are utilized to their maximum capacity. The corporation has sufficient capacity to take care of all the traffic that has so far been developed on the Mississippi and Warrior rivers and a division of this traffic with other water carriers results in an increase in the corporation's per ton costs."

The operating manager of the Lower Mississippi di-

(*Continued on page 654*)

Effect of Streamlining Railway Passenger Equipment Cars

Wind-tunnel determination of head-end resistance alone not sufficient guide; length of train and skin friction also vitally important

By E. J. W. Ragsdale*

IN MOVING an object the surrounding air is put into motion. Now, air has mass just as do more substantial things and one of the first laws of physics relates to the force required to put in motion anything having mass. This force is directly proportionate to the total amount of mass involved as well as the rate at which motion is imparted to it. So then, force is required to accelerate the still air in front of a moving object; in other words, to overcome wind resistance. The greater the extent and the more violent the air disturbance the greater will be the resistance offered to the passage of the object. The extent is proportionate to the product of the cross-sectional area of the object and the speed of its motion; the violence is a function of speed alone. So, the total wind resistance will be some function of the area times the square of the velocity.

$$R = C A V^2$$

Where R is expressed in pounds, A in square feet and V in miles per hour, C is the function coefficient and varies widely with the front and rear formations of the object. It is the consideration upon which is based the science of streamlining.

A form which offers little atmospheric disturbance is said to be streamlined. Its performance is predictable on the basis of data established in wind-tunnel tests. Here scale models are suspended in an air stream traveling anywhere from 60 to 100 m. p. h. The force required to hold the model in position is delicately measured and equals the wind resistance at the given air speed. With these figures the C factor for the particular form of any model can be determined. That same factor is applicable at almost any speed to any object having the same form, regardless of its size. In the case of a very poor form, like a flat plate, the C factor is .0032, while that for a well streamlined object, like a dirigible, is .0002.

Wind-tunnel work has been developed for and by aviation. Here it has well served its purpose and from its results can be made an accurate estimate of full sized performance. Where discrepancies arise in the comparison between model and object, these are known as well as are the factors of correction. It is only when we undertake suddenly to extend this practice into other arts that confusion is apt to result. An extended utility does not necessarily continue a fixed degree of reliability.

We have some such condition in the wind-tunnel determination of resistance values in the case of road or rail vehicles. Here the outstanding difference lies in what is known as "ground effect." A vehicle, unlike the airplane, is only partially surrounded by free air. In its passing over the roadbed the natural air courses become deflected and uncertain. Furthermore, this ground effect may even display different characteristics at different speeds and thus upset the premise that the C factor remains constant at all speeds.

In wind-tunnel work ground effect is simulated by several methods. The model may be attached to a thin, flat plate; two identical models may be mounted one on the other, mirror fashion, or a belt may be rigged to progress beneath the model at the proper speed. All must be recognized as approximations as must also the fact that road beds offer no uniform conditions. A smoothly ballasted road will contrast greatly with one having highly exposed cross-ties to act like so many turbine blades clipping off the air beneath the train. Then, in addition to ground effect, the study of railroad trains introduces two other considerations. One relates to the proportion between length and cross-section, the other to skin friction.

Most airplane sections have a reasonable relation between maximum width and length; that is, 1:3, or 1:6, and within these limits formation is so important that skin friction is of little moment, and, what is more, the air performance between model and full-sized object is similar. Both conditions alter as the length becomes excessive. This is largely due to the fact that air is capable of compression or expansion under change of pressure and, as a consequence, introduces air velocities not directly attributable to the speed of the object. The effect of these varies somewhat with the model size and is compensated for by application of a scale factor, usually expressed in a percentage.

Skin Friction

The other effect of length is skin friction and that is another property difficult of simulation between model and object. Skin friction is hard to differentiate from the turbulence which is set up in a train by recessed windows, grab handles, etc. Both are usually included under the one heading. Pure skin friction has been determined through an interesting set of experiments by Zahm. He found that while a thin, flat plate held normal to the wind had a resistance of

$$R = .0032\, A\, V^2$$

if held edgewise, it offered a resistance of

$$R = .00001674\, A^{0.93}\, V^{1.86}$$

Wind tunnels vary widely in diameter and type so that a model must be scaled to suit the characteristics of the particular tunnel used. As a rule, length rather than cross-section will govern. There is only a very limited zone where the air stream has a constant and uniform velocity, so when it comes to testing train models the length should not exceed this zone and the

* Col. Ragsdale is chief engineer of the Rail Car Division of the Edward G. Budd Manufacturing Company.

cross section automatically becomes very small as compared to that of the tunnel. In model tests of the Burlington "Zephyr" the area was only 7.27 sq. in., or 1,474 times smaller than the actual projected frontal area of the train. Furthermore, the record was made at an air flow of 60 m. p. h., and, in order to correct to 95 m. p. h., would have to be multiplied by 9.025 × 3.600, or 2½. This, together with scale reduction, means that the measured model resistance plus a 20 per cent "scale effect" has to be multiplied by 2.5 × 1,474, or 3,685, in order to obtain the wind resistance of the train at the higher speed. In other words, the Zephyr model registered a net resistance, after deducting that of the plate and rigging, of 0.24 lb. To this we add 20 per cent for scale effect and get 0.29 lb., and then multiply by 3,685 to determine a wind resistance of 1,000 lb. Again, adding a wheel and flange resistance of approximately 600 lb., we find required a tractive force of 1,600 lb.

It seems a long cry from a 0.24-lb. model resistance to a train resistance of two-thirds of a ton, with many an extrapolation in between and followed by an apparently arbitrary increase of 20 per cent. It seems as though the wind tunnel had been over extended far beyond any possible utility. It might even seem as though streamlining, so essential to aircraft and short vehicles, had no place at all in train construction. Actually, such is not the case. There is simply a shifting of calibration values, a change of emphases and the basic fact that the wind tunnel remains an instrument of fair precision. Its results are reliable within one or two per cent. It will not, however, correct fallacious premises, nor give satisfaction through injudicious use. With a well-developed background of test and experience the wind tunnel today serves to predict with reasonable accuracy any aircraft performance. Lacking this background for road vehicles, its present usefulness seems confined to quantitative comparisons between forms of known performance and those as yet untried.

With recognition of these facts aerodynamic research of railroad vehicles may become divorced from some of the supposed magic attributed to streamlining and still be able to make a valuable contribution to the art. The present trend is hopefully in this direction.

Tests made in connection with the design of the Zephyr for the Burlington were predicated on having a comparison between a conservatively streamlined three-car unit with one of similar dimensions, but built along conventional lines. Performance data on the latter exist, especially in electrified service. With comparative values established, the adequacy of the power available on the Zephyr should become a simple matter to check. The accompanying chart shows values for both trains. The 20 per cent scale factor is added to bring the tunnel results of the conventional train up to performance record. It is assumed that the same scale factor should apply to the Zephyr since similar scale model reductions were used. Both trains being here assumed also of like weight, the frictional resistance forms a common base upon which is superimposed the respective wind resistances at different speeds.

Significant then becomes the tractive effort curve showing the pull available from the power unit. Where it crosses the resistance curve the train is said to "balance out." In other words, the conventional design with this same given power plant reaches a top speed of 73 m. p. h., while the streamlined Zephyr attains 95 m. h. p.*

Of further interest is the discovery that two-thirds of the head-on wind resistance consists of so-called skin friction. This rather discourages any extravagant streamlining of front and rear and emphasizes the necessity of cleaning up the surfaces. The longer the train the more essential will this become.

Comparison with Conventional Train

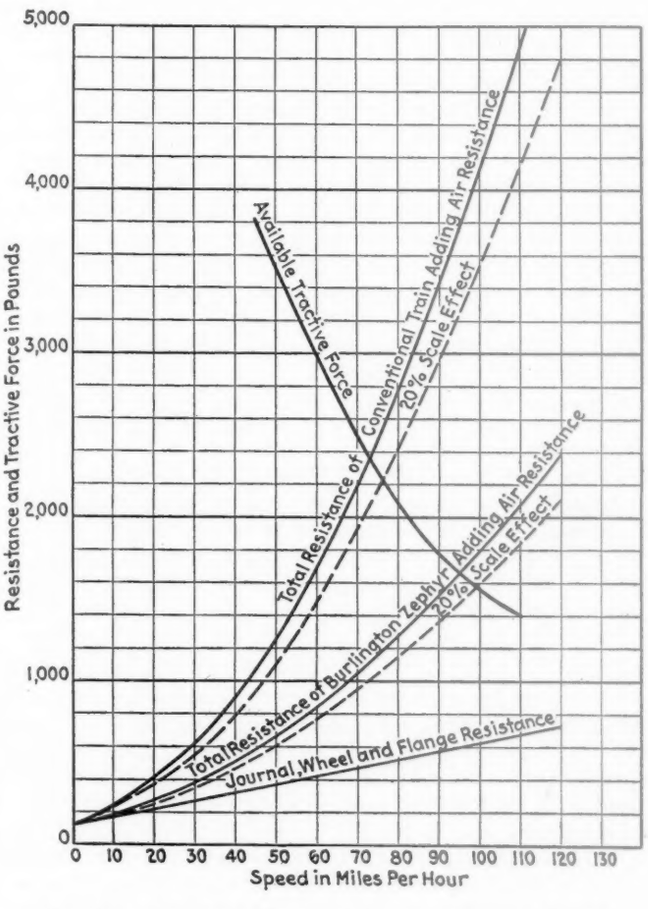
An approximate breakdown of all factors governing the performance of the Zephyr and of a more conventional train of like cross-sectional area and length will lend a better perspective to the power picture as a whole. In this the Zephyr is taken at 196 ft. in length, 100 sq. ft. of maximum cross-section, and 193,000 lb. in weight. Its performance prediction is shown on the chart as well as that of the other train, provided the weights remain identical. But, in order to illustrate differences incident to streamlining as well as weight, the second train is now considered to weigh 450,000 lb., which is not far from common practice.

Comparative Resistance of Light Streamlined and Conventional Trains

	Zephyr 3-car train	Conventional 3-car train
Speed	95 m.p.h.	95 m.p.h.
Weight	193,000 lb.	450,000 lb.
Journal friction	125 lb.	300 lb.
Wheel and flange friction	500 lb.	1,170 lb.
Total friction	625 lb.	1,470 lb.
Wind resistance due to skin friction	684 lb.	....
Wind resistance due to end formations	342 lb.	....
Total air resistance	1,026 lb.	3,240 lb.
Total train resistance	1,651 lb.	4,710 lb.
Tractive force available	1,651 lb.	....
Horsepower at rail	418	1,190
Horsepower at engine	600	1,700
Pounds of train per engine horsepower	322	264

These figures emphasize in their order of importance (1) cleaning up the surfaces, (2) weight as a function of friction, and (3) end formations.

In this same connection the question has arisen as to



Distribution of Train Resistance Losses at Various Speeds

*In one of the early trial runs the Zephyr attained a maximum speed in excess of 100 m.p.h. over a level track and with no wind.—[Editor].

the air resistance incident to the fluted or corrugated skin surfaces so characteristic of all Budd designs. No definite data are available. The belief is that such increased resistance as may result is more than offset by the tendency of the axial lines to entrain any stray air currents into the normal air stream. Furthermore, the highly polished steel surfaces without rivet heads, paint or lap joints is a decided advantage. Far more serious are the seemingly unavoidable projections, such as marker lights, grab handles, loop steps and running gear.

Effect of Side and Quartering Winds

So far discussion has been confined to head-on resistance, but investigation has included also the effect of side and quartering winds. These were simulated by "yawing" the model to varying degrees with respect to the air stream. At 15 deg. off axis the fore and aft drag had increased by 17 per cent for the streamlined model and by 45 per cent for the conventional design; again emphasizing the importance of a smooth surface. Further investigations into lateral and lifting components were chiefly of academic interest.

Models and tests were made by the Department of Aeronautics, Massachusetts Institute of Technology, under the supervision of Prof. Shatswell Ober. A wind tunnel having a 5-ft. throat and a 60 m. h. p. velocity was used. Since the primary object was to determine comparative values for two distinct types, it was decided to simulate ground effect by mounting the models on a plate. Models were built closely to scale and made as truly representative as possible. No particular attempt was made to create highly polished surfaces, nor to introduce alternate forms of possibly academic, but certainly of no practical value. The tests well served the purpose intended.

When the Zephyr's history of performance becomes available we shall have another and valuable datum upon which to calibrate further wind-tunnel results. In the meantime the suggestion is offered that research has a wonderful opportunity in also investigating the influence on air flow of intakes and exhaust. The taking of 43,000 cu. ft. of cooling air per minute through the frontal louvres and the exhausting of the same together with expanded engine gases through the roof slot can hardly be without effect on the general air stream. The determination of proper locations for intake louvres and radiators may not only save engine heating but also materially reduce the power loss due to driving air through unnatural channels.

Finally, no consideration of streamlining dare overlook the question of public reaction. The subject has grasped the public fancy and its ideas will not always coincide with those of the investigator. If science must endorse the grotesque, its labors may be in vain. The human eye after all is quick to resent the unsightly. A thing of beauty will ever command attention when a possible extra mile per hour will have been forgotten as just so much arithmetic.

THE NEW ZEALAND GOVERNMENT RAILWAYS, for the year ending March 31, 1933, reported a deficit, after interest charges, of £1,380,111, a reduction of £3,361 from the 1931-32 deficit of £1,383,472. Gross revenues for 1932-33 were £6,034,403, a decrease of £475,545, as compared with the previous year; operating expenses were £5,183,859, a reduction of £487,096. The improvement of £12,551 in net revenues was offset by a £9,190 rise in interest charges. The report points out that net operating revenues increased during the years 1931-32 and 1932-33 by 23.5 per cent.

New Deal for I. W. C. Suggested by Gen. Ashburn

(*Continued from page 651*)

vision says that "our tonnage for 1933 shows a decrease of 6.7 per cent in comparison with 1932. This decrease is largely the result of the complete loss of cotton movement and the decrease in grain, southbound, as well as the decrease of southbound sugar. As a result of loss of this southbound tonnage, the movement of freight was not as evenly balanced as in previous years. Record shows we handled northbound 705,213 tons, or 58 per cent, and southbound 500,703 tons, or 42 per cent, a total of 1,205,916 pounds."

How Success Will Be Gaged

In the annual report for 1929 General Ashburn said there should be no concern because the government barge line did not carry as much in 1929 as it did in 1928 because "We have encouraged and assisted every form of water transportation, even that in direct opposition to our own operations, because it has been realized that although the governmental corporation would lose freight carried by its water competitors, it has, nevertheless, been fulfilling the purpose for which it was created. . . . We may lose more and more freight as private competition increases, but if the time should come that the government barges ride high and dry on the rivers, with empty holds, and their crews look at privately owned tows pushing through the stream, laden until their decks are awash, then the government's final success in business will be written when it is driven out of business."

Now, however, he finds that the only one of the various transportation agencies in the Mississippi Valley "which has a fixed mandate to perform, i. e., to establish a system and to protect the rights of the public in all forms of transportation, is the Inland Waterways Corporation," and that the permanent system contemplated to furnish the Mississippi Valley with an outlet to the sea "must be brought about by the operations of the Federal Barge Lines, or not at all," because if the present process is continued, "either the rail or legitimate water carriers will be driven out of business, and water rights of way created by the government for the benefit of all, will be utilized solely for the aggrandizement of a few private operators. When that situation arrives, the rail lines will demolish the private operators without serious inconvenience."

The report shows a consolidated "net profit" for the year of $66,786, based on a net income from operations of $30,049 for the Inland Waterways Corporation and $58,642 for the Warrior River Terminal Company, less deductions for losses on equipment retired and adjustments applicable to prior periods. The consolidated net profit from June 1, 1924, to December 31, 1933, is stated as $706,692. The net income from operations of the federal barge line for 1932 was $470,140. For all divisions combined the tonnage transported in 1933 was 1,605,844, as compared with 1,653,088 for 1932. The upper Mississippi river division showed an increase from 104,185 to 144,585. The comptroller also reports some "material" changes in rates as accounting for part of the loss in revenue. The report includes the usual estimate of the savings to the public on traffic handled by the barge lines as compared with what the charges would have been if the traffic had been handled by rail, amounting to $20,664,000 for the entire period since 1924.

Talk Standards for Railway Buying at New York

Purchasing spokesmen eager for reforms—Strong sentiment for technical bureaus—Lockwood states government's position

THE problems and progress in standardization and research for railway purchasing were the topic for consideration at a recent meeting of the New York Railroad Club when R. L. Lockwood, director of the section of purchases in the organization of the Federal Co-ordinator of Transportation, addressed a large gathering of railway and railway supply men on the status of present progress and developments. Other speakers who took part in the discussion included C. D. Young, vice-president, purchases, Pennsylvania; C. E. Smith, vice-president, purchases, New York, New Haven & Hartford; G. J. Ray, vice-president, operation, Delaware, Lackawanna & Western; and Roy V. Wright, vice-president, *Simmons-Boardman Publishing Company.* It was a session marked by the freedom with which railway supply officers related their experiences in standardization and expressed their views regarding a subject which is receiving wide attention at this time.

Remarks of Mr. Lockwood

Referring to the work and aims of the Co-ordinator's office, Mr. Lockwood said in part: The Section of Purchases was so named for the reason that it deals with the things that are purchased by the railroads. It has been a misleading title in certain respects, for it has encouraged any one who has invented anything which he thinks a railroad could use, to come to Washington. People come with the thought that if they show us the idea, we can immediately issue a mandatory order to the railroads to buy that particular device, and it takes a long time to convince them that we cannot. We have accumulated a list of new devices that far exceeds anything I have ever seen. Ninety-five per cent of them are not worth looking into; the other five per cent contain many remarkable things, some of which have been brought to the attention of the railroads and most of which will doubtless reach their attention sooner or later. We do not have the funds or the staff to look into them as carefully as we would like to. About all we can do is to classify them, see the people that are concerned with the good ones, and try to appraise them in terms of dollars' and cents' value to the railroads.

Traffic and Purchases

There has been a great deal of talk about various evil practices in purchasing, such as reciprocal buying, the use of traffic as a club, etc. I have had a theory for a long time that if the things purchased can be pretty well standardized and reduced in variety as much as possible, many of the purchasing practices which have been criticized will automatically disappear. I realize the difficulty of establishing standards in an industry as complicated and as far-flung as the railroad industry, but I am still convinced, after eight months' study, that standardization is at least one of the approaches to the problem of sound purchasing. I am not sure that it is not the most important approach.

We have devoted a lot of time to studying existing standards worked out by the Engineering, the Mechanical and the Purchases and Stores divisions of the American Railway Association, including physical standards, recommended practices and methods. We find that adherence to standards that have been approved by the A. R. A. is, in many cases, very low. A large amount of work has been done, but much of it has not been effective. Adherence to present standards ranges all the way from 80 to 90 per cent down to 4 or 5 per cent. The reasons for this are numerous. Sometimes standards are too old; sometimes they have not been brought up to date or kept up to date; or they are not sufficiently flexible.

Use of Mandatory Power

The Emergency Railroad Act gives the Co-ordinator mandatory authority of considerable scope. I have always regarded mandatory authority as a dangerous weapon. You cannot always tell what it will do until you start to use it. In the case of standards, this is decidedly so. We have been criticized for not using this mandatory authority. We don't believe in that method of doing business. We believe there are only two ways to select any standard. One is to take the majority opinion, and that ought to be a large majority, of the committee that developed the standard. The other way is to study the standard thoroughly, from both a technical standpoint and an economic standpoint, using outside agencies, if necessary, and determine whether it is sound or not. That takes time and money. We do not have the staff or the funds to do that kind of work. But I believe it can be done by the various committees now working on standards of the American Railway Association, and we conceive our function to be that of accelerating the work of those committees where it is necessary to apply outside pressure, to help make effective the things that the men doing the work know is effective. We have that authority, and, in some instances, may exercise it.

Buying on Performance

Buying materials on a basis of performance is a subject that is in our minds all the time. We have discussed this subject with a number of railroad and equipment men. In general, we feel that the people who set the standards for railroad equipment ought to be more directly concerned with performance than with the design or construction or details. We are doing what we can to help stimulate the development of real performance specifications in many classes of railway equipment, supplies and materials, and I think we are getting somewhere with it.

We do not know as yet when or whether we shall have the staff or the funds to make real studies of new devices. We feel that such studies should be made, but that the proper people to make them are those directly concerned. The American Railway Association has a research committee in the Mechanical divsion, and is

organizing one in the Engineering division. These committees expect to pass on all new devices, and to do a great deal of research work. They have a long list of research subjects. Those activities are not really started yet, but we are going to co-operate in every way we can.

Centralized Research Coming

There has been talk about setting up a central technical bureau. I believe it is going to come. What form it will take, no one can tell at present. Mr. Eastman mentioned it in his first report. I have discussed it a great deal with individuals. I feel that if the railroads will get together as other industries have done and centralize their research and a great many of their technical operations, including scientific work, engineering, testing and experimental work, they can save a lot of money and take advantage of new developments which are coming.

With the railroad industry, the equipment industry and institutional organizations, colleges and research foundations, we have facilities to do almost any kind of work that needs doing. What we need is co-ordination of facilities. We are making an appraisal of all associations and societies which do any work of this kind at all, finding what field they are covering, how much they have done and whether they co-ordinate with others.

We are investigating all the possibilities for improving existing equipment or for the application of new equipment, getting the answer in terms of dollars and cents, so far as we can. One subject is that of shop equipment. Many concerned with the operation of the shops feel they could save money and keep their equipment in better condition at less expense if they could modernize their shop equipment and, in some cases, their methods. A survey is being made of one railroad shop, a fairly large one, which is perhaps somewhat above the average as to quality of equipment. That survey will be completed and report made on it by the first of April. We may go further with other shops, with the idea of finding out whether an expenditure of money for modernizing shop equipment will pay out in any reasonable length of time, and what actual economies can be accomplished.

C. E. Smith Proposes Rating Bureau

In an extended discussion of Mr. Lockwood's address, Mr. Smith advocated a material rating bureau, which would handle materials that are offered for sale, in much the same way as the fire underwriters' laboratory studies products. It is easy enough, he said to concentrate on one product, but the New Haven has in its stock book 55,000 separate items, and in a single year places 90,000 orders, averaging about 300 a day, and it is impossible for the purchasing officer to form any accurate judgment as to the relative value of materials offered. Take a little thing like high-speed twist drills offered by 10 or 15 different companies, all with national names, he said. Under test, they rate from the best, taken as 100 per cent, to as low as 35 per cent. At substantially the same price, we can buy twist drills from one company that will give us nearly three times as much service as those offered by a company which has just as good a name and reputation. Such a test might have been made in some central testing laboratory and the results made available to all railroads so they could all know.

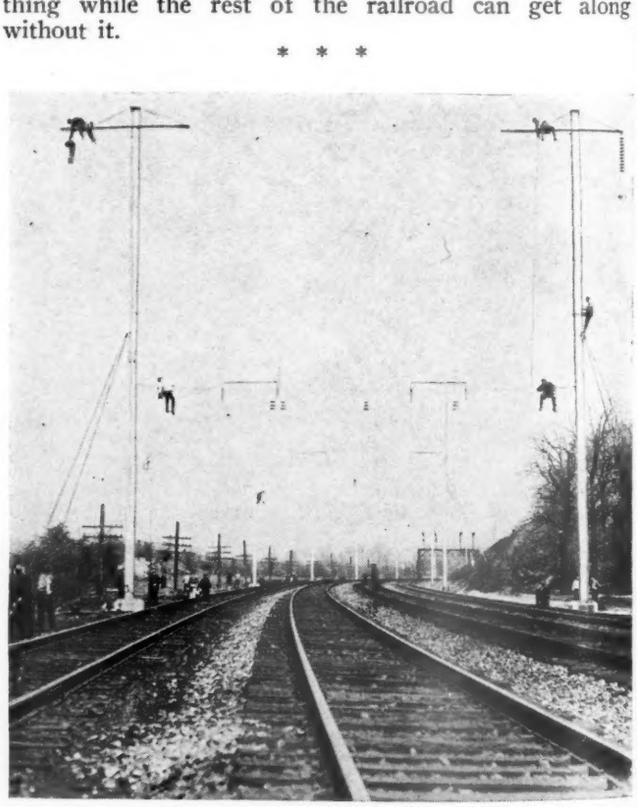
Mr. Smith deplored the practice of sending representatives to committee meetings and conventions of national railroad associations to adopt specifications and standards, only to disregard them when purchases are made. In one case, he said, a standard specification, adopted as long as 10 years ago, is being used on only about 60,000 miles of railroads, although the price paid for that material by three-quarters of the railroads is substantially twice that of material that can be bought to the specification. The supply men, he added, know that many items that will sell on one railroad will not sell on another. Yet the railroads put their materials on cars that operate on other railroads. With repair parts, particularly freight-car parts, the condition, he said, is accentuated, each railroad not only carrying repair parts for its own equipment, but for foreign equipment, and experiencing delays, with per diem charges, while waiting for material to repair foreign cars. When, he concluded, we realize that those things which are satisfactory on one railroad will work satisfactorily on another, we can cut down the number of standards, simplify the work of the mechanical and engineering departments, reduce the work of the purchases and stores department, and decrease the cost of materials and maintenance and operation to the railroads.

C. D. Young Describes Pennsylvania Methods

Reviewing the standardization work on the Pennsylvania, Mr. Young strongly endorsed such work and expressed confidence that the studies of the scientific committees would be very beneficial. He then explained, with several incidents, how the human equation may not be overlooked in securing permanent results.

When we started the standardization work, he said, we found that we had to have a research staff. In other words, we had to have definite knowledge that we were on firm ground. It has also been pointed out to you that you must keep standards up to date. They will not stay firm with changing conditions and changed problems. Standardization has reduced our standard catalog items for stores stock from an estimated number of 170,000 to about 70,000. We have many ways of reducing the number of items. Generally, the best means have been through our central store stock record, finding out why one individual wants a certain type or kind of thing while the rest of the railroad can get along without it.

* * *



Some of the 4,000 Men Now Working on the Pennsylvania's New York-Washington Electrification Project, Which is Part of the P. R. R. Program Being Financed with P.W.A. Loans

New Pension Bill Proposed

Eastman declaring it would be unwise to proceed now, outlines requirements

WASHINGTON, D. C.

AFTER four days of hearings last week on the Wagner-Hatfield railroad pension bill, during which it was severely criticized not only by Frank V. Whiting, general claims attorney of the New York Central Lines and chairman of a committee on pensions appointed by the Association of Railway Executives, but also by Co-ordinator Eastman, who expressed the conclusion that "the information now at hand does not permit of wise and well-considered legislation on the subject of pensions," the sub-committee of the Senate Committee on interstate commerce in charge of the bill has decided to have a new bill written.

This decision was reached at the conclusion of Mr. Eastman's testimony and after Lee Eddy, vice-president of the Order of Railroad Telegraphers, on behalf of the Railway Labor Executives' Association, had suggested that Congress enact temporary pension legislation to operate for a period of four years and that in the meantime the experience obtained be used as a basis for permanent pension legislation. It was stated also that this suggestion was agreeable to the Railroad Employees' National Pension Association, which had proposed the original Hatfield bill as a rival to the Wagner bill proposed by the Railway Labor Executives' Association. At the hearing the Wagner-Hatfield bill, described as a combination of the two earlier bills, was supported on behalf of both associations, although Mr. Whiting told the committee that the revised bill was practically identical with S. 817, introduced by Senator Hatfield on March 27, 1933, and that it contains no provisions from the Wagner bill, S. 1529. Extensive hearings on the two earlier bills were held last year, when they were opposed by the railroad committee as being actuarily unsound and as imposing prohibitive costs on the railroads.

Mr. Eastman, in pointing out the numerous defects and discriminatory features in S. 3231, the revised bill, emphasized that his criticisms did not imply opposition to pension legislation in general and said that a sound pension system is fundamental to any program of employee security. As soon as adequate information in usable form is available it is his purpose to have a plan formulated by his staff and advisers which will be submitted to interested parties for comment and suggestions, but "it would appear definitely unwise to proceed with the formulation of a pension retirement system before these analyses are completed." Most of his criticisms of the bill agreed with those made by Mr. Whiting. The principal testimony in support of the bill was given by Herman Ekern, on behalf of the pension association.

Tentative Plan Outlined by Advisory Committee

Mr. Eastman pointed out that he had established in his organization a Section of Labor Relations in charge of Otto S. Beyer, an engineer who has had wide experience in labor matters, and that one of the subjects which this section has undertaken to study has been ways and means of providing greater economic security for the railroad employees. An Advisory Committee selected to aid in this study, made up of men who have given much thought to the human problems of industry, has submitted a comprehensive report outlining a plan which embraces a system of retirement annuities, a placement service to facilitate the transfer of employees and the location of jobs for them, a system of unemployment benefits, and the payment of dismissal compensation for employees released from service in connection with certain economy programs. He was not prepared to recommend this plan as yet, "for obviously it requires the most careful consideration from many points of view. In fact the report of the committee is at this stage a statement of principles, rather than a co-ordinated, detailed program."

Present Plans Out of Date

"Pension systems have been in existence in the railroad industry for as long as 50 years," Mr. Eastman said. "The experience, however, has not been satisfactory, which explains why you have the problem before you now. The systems were established gradually. Each carrier tended to copy plans already in effect, with a few minor modifications. So long as railroad employment expended and payrolls increased, the systems were not given any very penetrating thought. Some modifications were made in the light of experience, and certain practices changed within the original framework.

"At the outset of the depression the plans were, as can now be seen, out of date; liabilities were tremendous, with practically no funds to meet them. As a result, retirement incomes were reduced, and retirements were slowed down or stopped altogether. There is a question as to how far the liabilities under these voluntary plans are legally binding upon the carriers. That there is a strong moral obligation, however, will hardly be questioned; and complete abandonment of the plans would work havoc with labor relations. Estimates have been made of the liabilities already accrued under these plans, assuming their continuation, ranging from $700,000,000 to about $900,000,000. In view of the lack of basic information, even this range does not cover the possible margin of error.

"Practically all roads reduced pensions at, or shortly after, the beginning of the 10 per cent wage deduction in 1932, most of the reductions being also 10 per cent, but some roads, such as the Boston & Maine, the New York Central,* and the Chicago & North Western, reduced some or all pensions from 15 to 40 per cent. Retirements in 1933 were considerably fewer than in 1932, many roads making no retirements short of the compulsory age, 70, and some even suspending that provision. At least one road has made no retirements for three years.

"It is possible to learn from this unsatisfactory experience much concerning what ought not to be done; but rather less as to what should be done. The problem is this. There is a large body of superannuated employees in railroad service, who for the good of the service ought to be retired. There will continue to be such employees so long as railroads operate with labor

* The New York Central states that no reductions were made in pensions of less than $25 a month; that those from $25 to $65 were reduced 10 per cent; and that those above $65 were reduced 15 per cent.—Editor.

policies like those now in force. But to make retirements requires payment of incomes by the carriers. Financial exigencies have been such as to require reductions in retirement incomes already promised. How, therefore, may incomes be provided for the superannuated employees without jeopardizing the present and future financial position of the carriers, and what sort of a policy is needed which in the future will prevent the recurrence of present conditions?

Facts Required for Formulation of Pension System

"Since the experience with pensions has been mainly negative, the sensible approach seems to be to make a fresh start, and try to determine fundamental facts on which to build." Among the questions of fact which have to be investigated Mr. Eastman mentioned the following:

(1) *The Rate of Superannuation.* It is a well known physiological fact that the age at which persons become unfit for employment on account of age varies as between individuals, and that the average age varies with the kind of employment and with changes in the demand for labor. Pension system technique is sufficiently advanced to enable clauses to be formulated which will be sufficiently flexible to take account equitably of certain individual differences. But the fixing of retirement ages for different classes of employment is related largely to conditions which vary from industry to industry and may conceivably vary within an industry. What is required is knowledge as to the age in the past at which employees in various classes of rail service have begun to be superannuated and the rate of superannuation thereafter.

(2) *The Rate of Mortality Among Pensioners.* How long do pensioners live? It is probable, on the basis of sample studies for a few roads, that railroad pensioners have in the past lived for shorter periods than, for example, persons at advanced ages who have purchased annuities from insurance companies. But the exact duration of life for the group and whether mortality is improving or not is not known.

(3) *The Rate of Survivorship of Active Employees.* How many employees of a given group entering the service will ultimately receive a pension? This obviously depends on the specific plan. But an intelligent estimate can be built only on the basis of a detailed knowledge of the rates of mortality, disability, and withdrawal (labor turnover) which have prevailed in the past.

(4) *The Amount of Benefit.* How much should be paid to retired employees? This, of course, is a highly complicated question. But important questions of fact can be determined. For example, the amounts of pension produced by various formulae in common use, or by formulae which may be proposed, can be ascertained; the adequacy of these amounts can be tested in the light of fairly well established standards; and the equity of the formulae as between various groups of employees can be assessed.

(5) *Cost.* Finally, how much will any proposed system cost? The nature of a pension plan is such that an exact statement of cost is impossible. An employee aged 25, for example, may earn a pension credit which will begin, if he lives, 40 years hence. Of any large group, at any given time, some of those at age 25 will be on the pension roll 75 years later. The financial condition of the railroads and their employees absolutely requires as a prerequisite to the passage of legislation that the cost element be investigated as thoroughly as possible.

The necessity for reasonably accurate accounting requires that the current accounts show as nearly as possible the liabilities incurred for pensions by reason of service rendered during the accounting period. Under present railroad pension plans the accounts reflect the pension liability, not when it is incurred, but when it is liquidated. The result is that thus far the net incomes of railroads have been overstated by the amount of currently accruing pension liabilities; and, in the future, if the present plans are continued, there must necessarily be a corresponding understatement. Costing on the basis of judicious estimates is not peculiar to pensions. Accounting for depreciation and obsolescence necessitates estimates of the length of property life, which in turn involve certain factors not subject to precise prediction.

Data Being Collected. The collection of information on all these points has been under way for some time. Employment histories of 400,000 railroad employees and 110,000 pensioners have been taken from carriers' records by 1,500 persons under the direction of my staff and are now being summarized and tabulated in a form permitting analysis by a staff of about 500 in New York. The funds for this work have been provided by the Civil Works Administration. Taken together these records constitute the most comprehensive sample of employment histories ever compiled for any industry. From these records rates of mortality, withdrawal (by cause), rates of superannuation, disability, unemployment, and salary or wage change will be computed. On the basis of these rates and the collateral information being collected it will be possible to make reasonable estimates of expenditures and costs under any particular proposal for a retirement system.

It was originally anticipated that a preliminary analysis of the records would be completed in April. This has, for various reasons, proved to be impossible, but the work is proceeding rapidly. It would appear definitely unwise to proceed with the formulation of a pension retirement system before these analyses are completed. In view of the fact that a plan cannot be scientifically formulated, it is equally impossible to offer adequate criticism of any proposal for pension legislation. Some criticism, almost wholly of negative character, can however, be made.

Discriminatory Features of Proposed Legislation

The proposed pension system (S. 3231) includes features which involve serious discriminations as between groups of employees and as between carriers. In the first section it is provided that certain employees not in active service when the proposed plan becomes effective shall be eligible for participation. The employees so included are defined in terms of retention of the right to reinstatement. These rights vary widely as between carriers. In general, the language is such as to result in penalizing the employees of carriers which were most drastic in reducing employment and most hardboiled in cutting names from extra boards.

Moreover, persons who at any time in the past had as much as five years' rail employment and who left at any time, and for any reason, would be eligible to receive a pension at 65 if they obtained one day of rail employment after the system is inaugurated. In general this provision would act as a bar to re-employment of former railroad employees; but it also opens the door to favoritism in a gross form.

The ratio of benefits for service after the system is inaugurated to employee's contributions accumulated with interest would vary widely as between individuals. This is always true where employee contributions are more or less uniform percentages of pay and the benefits are fixed relative to pay, owing to differences in the rate of past changes in pay.

Under the bill the benefits are to be proportionate to the average compensation (not exceeding $400 per month) in any 20 months selected by the employee out of any 120 months of consecutive service (or in case of service shorter than 10 years, 2 months out of each year). Each employee will, of course, select the months so as to obtain the highest possible benefit. Employees in some branches of the service, particularly train and engine, will in many cases be able to select months in which compensation was much in excess of the normal or average level. In other important branches of the service, clerical for example, there will be little opportunity to select abnormally high compensation.

This feature of S.3231 appears to be particularly attractive to certain groups of railroad employees such as engineers and, to a considerable extent, conductors. Moreover, employees in these groups are largely in the upper age brackets. They will then pay little and receive much under the pension plan proposed in S.3231, because of the liberal extension of prior service credits as well as the low initial rates of contribution. Support for the bill from certain groups of employees, and failure of support from other groups, can be traced definitely to these discriminatory provisions.

The service period, which is a correlative factor along with the average 20 months' compensation in determining the amount of benefit, appears to include absences. The phrasing as it now stands is somewhat ambiguous, but it seems possible that an employee who was out of the service regularly two months each year would receive the same pension as another employee who was never absent, other things being equal, although the contributions of the latter would exceed those of the former by 20 per cent.

Carriers' basic contributions are proportionate to operating revenues. Gross operating revenue, however, has no fixed relation to total payroll and has still less connection with pension costs.

All employees are to contribute certain percentages of their pay which are to be, until changes, 2½ per cent plus certain additions. These additional contributions are to be the specific property of the employees as individuals, but the regular contributions are to be used only for paying pensions. Employees who withdraw permanently from rail service before completing five years of service will not receive a pension, so that their regular contributions would therefore, be forfeited. This is

especially discriminatory as regards the lower-paid employees generally, where the turnover is high during early years of service.

Lack of Sound Financial Basis

The discriminatory provisions of the bill introduce elements which are likely to disrupt the finances and make accurate cost accounting difficult. No one can possibly predict what an employee's benefit is likely to be when it is dependent upon so unpredictable a quantity as the average pay in any 20 months in any 120 consecutive months. Classifications of employees will change; pay rates will change; the whole level of wages may change, not only in a normal way but because of fluctuations in the gold content of the coinage or changing central banking policies, or outright inflation. A change in the wage level equal to that which occurred from 1918 to 1920 would produce a deficit in a pension fund running into hundreds of millions, if not billions, of dollars.

Even apart from the uncertainties which have just been pointed out, the cost element is open to question. For example, the mortality rates are assumed on the basis of insurance company experience with voluntary purchasers of annuities and with persons in non-hazardous occupations insured under group life insurance schemes.

The cost estimates prepared by the proponents of the bill seem to cover only railroad employees, although the bill itself appears to affect certain other important groups of employees. The possibility that former railroad employees who now hold no rights to reinstatement may be re-employed and gain prior service credits seems not adequately to have been taken into account. The bill also contemplates the payment of disability allowances. No estimate of the cost of this feature has been offered.

Provisions Requiring Clarification

There are a number of provisions in the bill which are not clear. For example, the bill purports to cover carriers subject to the Railway Labor Act *or* the Interstate Commerce Act, thus as it were defining carriers for the purposes of the Act by reference to two other acts. It goes on to add the rather indefinite language "and any subsidiary or auxiliary services used by or operated in connection with any such carrier." Nevertheless, the estimates of expenditures made by the proponents of the measure are confined to railroad employees.

While employees and officials in the pay of labor organizations are covered, no provision has been made for contributions by those organizations corresponding to those made by the carriers.

Excessive Administrative Costs

No particular attention seems to have been devoted to administrative costs. Service on all railroads is to be used to fix benefits. This is theoretically sound. But in practice investigation of service rendered on railroads other than the service in which an employee is engaged when the plan goes into effect (except in certain cases of affiliated carriers) will be highly expensive both to the pension system, the employees and the carriers, and in some instances, determination of such service will actually be impossible.

Conclusion

S.3231 is entitled a bill to provide a retirement system for railroad employees, to provide unemployment relief, and for other purposes. The unemployment relief contemplated is secured by the re-employment of furloughed railroad employees to take the place of those who are retired.

It seems likely that the bill would itself tend to defeat its own purposes so far as unemployment is concerned. It has been the usual experience that the work done by a group of employees just before retirement can be performed by a smaller number of younger men. There is nothing in the law to require the carriers to replace employees retired. Even more important is the fact that the railroads would discriminate, so far as possible, against former employees, since it would be much less expensive to hire young men without any prior service on railroads.

No satisfactory solution of the problem of unemployment has been found in this or in any other country which does not involve direct payments to the unemployed while they remain out of work. Just as the support of an adequate pension system requires payments from all employees, young and old, adequate support of a system of unemployment benefits requires contributions from all employees. The older group of employees on railroads are by and large more interested in pensions than in unemployment compensation, while the younger employees are more vitally concerned with the latter than the former. A balanced program of employment security must take into account both interests and provide adequate benefits both for the aged and the unemployed.

I cannot avoid the conclusion that the information now at hand does not permit of wise and well-considered legislation on the subject of pensions. We are, however, obtaining the necessary basic facts, so far as they are available and shall prosecute our study of this matter with all possible expedition.

Mr. Whiting's Testimony

Mr. Whiting said that the principal change in the bill was the additional percentage contribution by the carrier and employee to be set aside for the use of the individual with the thought that eventually the sum would be such as to "provide a fully paid pro rata part of the cost of the annuity, and on death the credit, or the excess, if any, of the credit on entering on the annuity over the sum of the annuity payments, shall be paid to designated beneficiaries or in the absence of a designation to the estate." Particular attention was called to the fact that no part of this "additional percentage contribution" goes into a common fund for the benefit of all.

The grouping of carriers into a single employment situation, as proposed in this bill, is not only unnecessary but uneconomical, he said. The matter of determining the principles providing for the retirement and pensioning of railroad employees should be on an individual basis as to units or systems of carriers. He continued:

If credit for prior service is limited to service on the road or system on which the employee is engaged at the time of retirement, including continuous service rendered for roads which at the time of retirement are owned, leased, controlled or operated by the retiring road, and if the economic burden of a pension plan were applied to the several railroads directly—in other words, if the carriers were not grouped into one body, there would be no need to have a federal bureau to administer the plan.

In embracing within its scope persons in subsidiary or auxiliary services, such as railroad controlled motor vehicle operations, mines, hotels, etc., the bill specifically applies to persons who have not heretofore and are not now recognized as railroad employees and who hold no seniority rights nor record of service and have not been and are not now compensated as such.

Likewise including each officer or representative of employee organizations in accordance with its provisions, it specifically applies to many persons who have long since severed their employee relationship with the railroads and who hold no seniority rights therewith and who are compensated by their organizations and not by the railroads for the services they render such organizations. We respectfully submit that to require railroads and their employees to make contributions to cover annuities payable to these persons is entirely beyond the pale of justification.

Coming now to the application of the provisions of this bill to railroad employees themselves, we submit that it is neither practicable or justifiable to include in their service period the service rendered for railroads other than the railroad the employee serves at the time of his retirement. It is obvious that the provisions of this bill in this particular would operate to encourage fraudulent claims which the railroads, for lack of records, would be unable to meet.

Separation from Service Not Defined

Another outstanding objectionable feature of the bill arises from the fact that it is entirely silent as to what constitutes and should be deemed separation from service. An equitable measurement of retirement benefits should recognize only continuous active service with the carrier served at the time of retirement. Manifestly, it is unfair and unsound economics to attempt to promise or provide a retirement benefit based upon and including periods during which the employee is not in actual service due to the fact that during such periods the employee is not required to make the contributions necessarily contemplated and requisite to provide the funds for such benefit.

The omission of provision recognizing separations from service as well as periods out of service in a measure relieves the employee from the necessity of rendering diligent, loyal and continuous service, which have always been considered as a fundamental principle underlying the establishment of a retirement system.

We submit that 30 years of service as a sufficient condition for retirement, without regard to age, is quite indefensible from the standpoint of social need or usefulness in that it increases unduly the cost of retirement benefits; that it permits retirement of those who are capable of giving many more years of useful service and whose experience and skill, gained in the service

of the railroads, is essential to their most efficient operation, and that it results in a class of pensioners who could readily undermine working conditions by accepting other employment at less than the prevailing wage scale. It does not serve a social need but creates other problems and burdens industry and society with unnecessary expense.

Manifestly, to pay 2 per cent of the average monthly compensation for each year of service prior to the effective date of such a plan, even if based on the average compensation for the ten years immediately preceding the retirement date, would produce a decided inequality of benefit to employees pensioned under the plan compared to those pensioned prior to the effective date of the act. Giving credit of 2 per cent of compensation for each year of service, both before and after the effective date, is not only extremely liberal, but raises the question as to where the money is to be found to liquidate this heavy burden. Lower percentages would compare favorably with retirement plans in other lines of industry and provide adequate retirement allowances.

The privilege to employees to "select any 20 months out of any 120 months of consecutive service" is grotesque. An employee would be able to select earnings during any 20 months that would greatly exceed his actual average monthly earnings. If the annuity is presumed to be commensurate with the earnings upon which the employee contributions are made, the equitable method would be to base the annuity on the aggregate compensation and the sum of the periods of net service. By so doing, the contributions and the benefits would be more closely related.

Compulsory Retirement at 65

Compulsory retirement of able-bodied men at age 65 is not only unwarranted but would meet with the objection of employees. It is well known that men advanced in years are, in many instances, more capable and competent than younger men. A man's mental and physical condition should be the governing factor in determining the question of his retirement from active service and if an arbitrary retirement age is selected, it should be higher than 65.

Section 4 provides that "any employee suffering disability shall be awarded a monthly disability payment equal to the annuity payable upon retirement at his then age, which disability payment shall not be less than $50 per month." While the bill aims to prevent a duplication of payments, it in no wise prevents the injured employee or the employee who contracts an occupational disease from either pursuing the remedy afforded by the Federal Employers' Liability Act or a grant of compensation under a federal or state workmen's compensation law or any other available remedy. The contribution of the carrier to the pension fund is based on a percentage of the operating revenue and it is clear that in the practical operation of the plan the carrier could not possibly receive credit for any amount paid an employee, either by way of direct settlement or by the satisfaction of a judgment or under the various compensation laws.

Attention is invited to the fact that Senate bill 3231 is not limited to providing pensions for superannuated employees, but also embodies other features foreign to the subject matter of retirement insurance. It specifically invades the field of life insurance by the payment of a death benefit, and health and accident insurance for disability through injury or occupational disease incurred in course of the service. It will be noted under section 4 of the bill that disability allowances are provided on a temporary as well as on a permanent basis. The features for unemployment relief, life, accident and health insurance have no place in a pension plan.

Burden of Cost Intolerable

Entirely apart from any question of constitutionality or unconstitutionality of the bill, irrespective of the wisdom or unwisdom of employee retirement insurance or pensions as a government policy, and regardless of the merit or lack of merit of our objection to certain other important particulars of the bill, the practical question, transcending every other consideration having a bearing on this bill, is the cost. Even under normal conditions, this burden would be unbearable and in the face of the present financial condition of the carriers, we submit that it would be inviting disaster to place upon them such a large increased burden as the enactment of this bill would create.

Shippers' Point of View

The opposition of the National Association of Manufacturers to the bill on the ground that it would increase costs to shippers and further endanger the solvency of the carriers was expressed by Noel Sargent, secretary of the association. At the same time, Mr. Sargent cited the fundamental relationship of the carriers to the general economic situation and urged that Congress give every encouragement to pulling all business out of the morass.

"I am telling no secret," he said, "when I say that today business has the jitters—it does not know whether this Congress will adopt policies which will encourage business revival or policies which will impede it.

"The bill before this honorable committee today is simply another example of that kind of proposed legislation which creates the jitters—a bill which would either impose added costs on the railroads and discourage private investment, or which would, through increased freight rates, handicap shippers trying to do more business and thereby provide increased employment. Upon both counts it should not be enacted."

Accident Record for 1933

THE Interstate Commerce Commission has issued advance sheets of its railroad accident record for the calendar year 1933, showing a total of 5,019 persons killed on the railroads of the country, and 27,494 injured; an increase over 1932 of 272 killed and a decrease of 1,725 injured. The increase in killed is mostly accounted for in one item, trespassers struck or run over at places other than public crossings; 1,536 as against 1,300 in the year preceding. Non-trespassers thus killed number 146 as compared with 157 in 1932. (The total of trespassers killed from all causes, 2,826, is 12.81 per cent greater than in 1932. One may reasonably guess that fully a thousand of these cases were of men or boys stealing rides on freight trains, or in trying to get on or off.)

Table A.—Casualties on Railroads, Three Years

	1933		1932		1931	
	Killed	Injd.	Killed	Injd.	Killed	Injd.
Passengers						
In train accidents	23	657	1	410	4	493
Train service accidents	15	1,315	22	1,501	36	1,609
Total train and tr. serv.	38	1,972	23	1,911	40	2,102
Non-train accidents	0	0	5	455	1	587
Grand Total, passengers	38	1,972	28	2,366	41	2,689
Employees						
In train accidents	66	351	63	326	92	414
Train service accidents	329	6,032	367	6,861	396	9,019
Total train and tr. serv.	395	6,383	430	7,187	488	9,433
Non-train accidents	105	9,200	127	10,227	156	13,521
Grand Total, employees	500	15,583	557	17,414	644	22,954
Other Persons						
In train accidents	129	357	119	261	133	301
Train service accidents	4,254	7,760	3,952	7,798	4,192	8,221
Total train and tr. serv.	4,383	8,117	4,071	8,059	4,325	8,522
Non-train accidents	98	1,822	91	1,380	89	1,491
Grand Total, other persons	4,481	9,939	4,162	9,439	4,414	10,013
Total, All Classes of Persons						
In train accidents	218	1,365	183	997	229	1,208
Train service accidents	4,598	15,107	4,341	16,160	4,624	18,849
Total train and tr. serv.	4,816	16,472	4,524	17,157	4,853	20,057
Non-train accidents	203	11,022	223	12,062	246	15,599
Grand Total	5,019	27,494	4,747	29,219	5,099	35,656

Passengers killed in train accidents, 23, the first and most prominent item in the record, also shows a notable increase as compared to the remarkable records of one in 1932, four in 1931, and seven in 1930. The present

record is accounted for mainly by the derailment at Hargis, N. M., on August 29 (8 killed), and the collision at Binghamton, N. Y., on September 5 (14 killed).

Totals of employees killed and injured show no remarkable changes from 1932; but it is to be remembered that 1932 recorded large decreases from 1931 and previous years, and that, since the middle of 1932, business has been increasing to such an extent that increases in some items must now be expected. The remarkable improvement in safety records which has been shown by various roads during the past few years has of course been due in part to the small percentage of inexperienced or incompetent men in the service.

The principal totals for the year, as shown in the present report, are given in Table A, together with data for the two years next preceding.

The total locomotive mileage for 1933, in millions, was 1,050.5, as compared with 1,079.7 in 1932 and 1,308.8 in 1931. Total persons killed per million locomotive miles in 1933, 4.58; in 1932, 4.19; in 1931, 3.71; injured: 15.68 in 1933; 15.89 in 1932 and 15.32 in 1931.

The number of man-hours reported by Class I railroads as worked in 1933, was, in millions, 2,148.5; in 1932, 2,286.5 and in 1931, 2,930.7.

The total number of persons killed at highway crossings (included partly under train accidents and partly under train-service accidents) was 1,511, as compared with 1,525 in 1932 and 1,811 in 1931; injured, 3,697 in 1933; 3,989 in 1932 and 4,657 in 1931.

The government accident record for 1929 was abstracted in the *Railway Age* of August 23, 1930, page 375. Subsequent years will be found in the issues of April 18, 1931; April 9 and October 8, 1932; April 22 and September 30, 1933.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended April 21 totaled 589,453 cars, an increase of 10,616 cars as compared with the week before and of 92,941 cars as compared with the corresponding week of last year. Decreases as compared with the preceding week were shown in the loading of merchandise, grain and grain products, and forest products, while all commodity classifications except grain showed increases as compared with last year. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

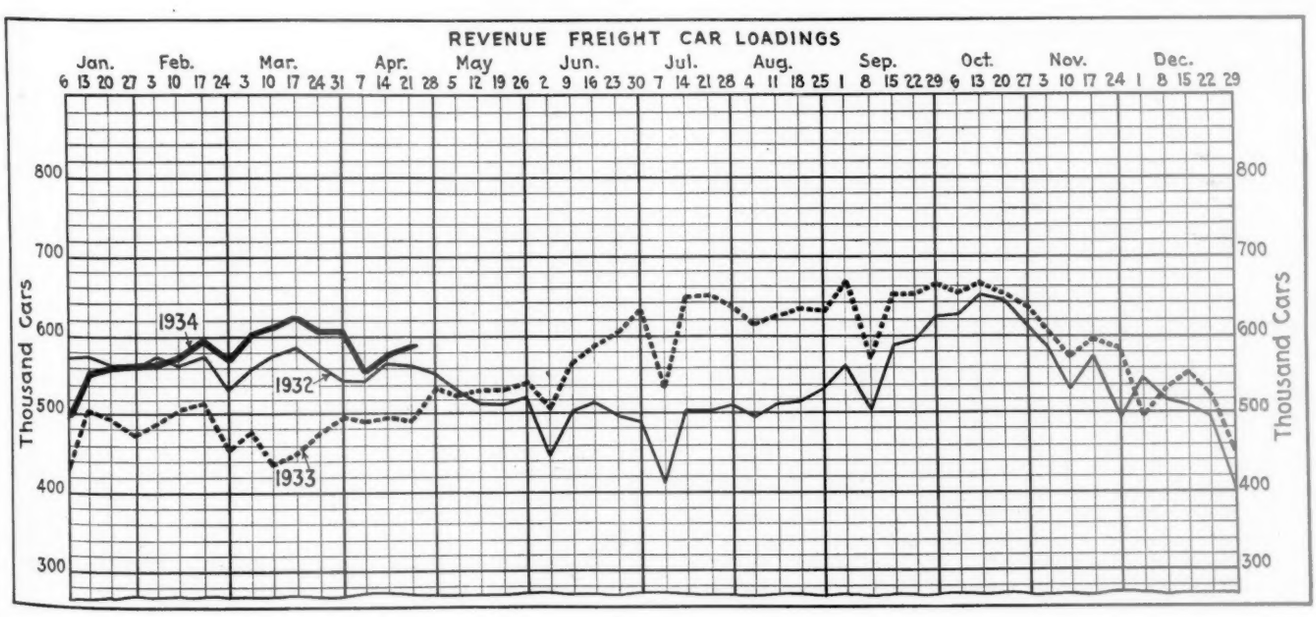
Week Ended Saturday, April 21, 1934

Districts	1934	1933	1932
Eastern	138,943	108,965	134,071
Allegheny	117,129	89,981	115,643
Pocahontas	42,092	32,416	34,825
Southern	88,278	82,219	85,254
Northwestern	69,679	59,860	63,540
Central Western	84,959	76,913	82,978
Southwestern	48,373	46,158	46,216
Total Western Districts	203,011	182,931	192,734
Total All Roads	589,453	496,512	562,527
Commodities			
Grain and Grain Products	26,286	34,854	31,286
Live Stock	18,671	16,644	20,297
Coal	100,426	74,127	93,075
Coke	5,629	3,072	3,601
Forest Products	23,885	17,122	19,806
Ore	8,610	3,418	4,946
Mdse. L. C. L.	165,671	160,446	185,142
Miscellaneous	240,275	186,829	204,374
April 21	589,453	496,512	562,527
April 14	578,837	498,182	566,826
April 7	557,887	492,061	545,623
March 31	608,443	498,356	544,961
March 24	608,462	479,959	561,118
Cumulative total, 16 weeks	9,271,825	7,736,050	9,010,766

Car Loading in Canada

Car loadings in Canada for the week ended April 21 totaled 44,505, increasing by 2,927 cars over the previous week, according to the compilation of the Dominion Bureau of Statistics. Grain increased by 1,504 cars, coal by 1,259 cars, miscellaneous freight by 423 cars, merchandise by 157 cars, other forest products by 119 cars and lumber by 100 cars. Compared with last year's loadings, total loadings were up 10,349 cars.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada:		
April 21, 1934	44,505	24,706
April 14, 1934	41,578	24,235
April 7, 1934	40,711	25,828
April 22, 1933	34,156	17,061
Cumulative Totals for Canada:		
April 21, 1934	656,585	373,321
April 22, 1933	527,461	274,153
April 23, 1932	659,963	346,882



Odds and Ends . . .

Bowlers Honor A. F. Martin

A. F. Martin, district claim agent of the Louisville & Nashville at Louisville, Ky., was elected president of the American Bowling Congress at the recent annual meeting of that organization. Mr. Martin was a vice-president of the organization for three years before his elevation to the presidency.

President Loree Breaks a Record

Leonor F. Loree last month broke a record which had been set by one of his predecessors as president of the Delaware & Hudson. John Wurts was president of the D. & H. from April 13, 1831, to March 15, 1858, or 26 years, 11 months, but on March 12 of this year this mark was surpassed by President Loree, who has been the chief executive of the Delaware & Hudson since April 10, 1907. Incidentally, the Delaware & Hudson has had only eight presidents during its more than 100 years of existence.

The "Flying Scot"

The famous British train, the "Flying Scot," has a human rival for ground-covering honors in the person of Cecil Furst, who, we probably do not need to say, is a Scot. This value-conscious gentleman bought one of the London & North Eastern tickets, which cost $3.75 and permit the holder to travel wherever he wants to within certain limits. In the seven days allowed, Mr. Furst covered 2,500 miles. In a four-month period, the London & North Eastern sold 83,000 holiday season tickets of this type. Not many of the purchasers came even close to Mr. Furst's record, but one other individual did travel 1,504 miles during his week.

Those Switching Puzzles

Since all the returns now appear to be in, it is appropriate to relieve the suspense—if any—of our readers and publish the solutions of the switching puzzles published on the "Odds & Ends" page of the *Railway Age* of January 6 and that of February 17. The first puzzle apparently was not too hard, since all of the answers received proved to be correct, at least in a general way. The second puzzle, however, was more difficult—we confess that it stumped this department—and only one correct answer has come in.

The first problem involved a meet of two trains, one of 30 cars and the other of 35 cars, at a point where the only available passing track was a spur which would hold only 9 cars and 1 engine, and which had but one connection with the main line. The simplest solution of this seems to be that the engine which is approaching the switch as a trailing switch cuts off the first nine cars and backs with them on to the spur. The other engine then pulls its cars past the switch and the first engine and the nine cars return to the main line and move down the track toward their destination. The second engine with its cars then couples on to 9 or 10 more cars from the first train, backs down the main line, places these cars on the spur, returns to the main line and then clears the switch so that the first engine with 9 cars can back into the spur and pick up the 9 or 10 additional cars, then returning to the main line and clearing the switch. The second engine then hooks on to some more of the first train's freight cars, and the process is repeated until the last of the cars of the first train have been switched from the main line to the spur, whereupon the second engine proceeds with its train while the first engine backs down to pick up the last cars in the spur. After the usual formalities, it can then proceed to its destination. To the number of our readers who successfully solved this problem, we extend our congratulations.

The second problem involved a meet between two freight trains of 8 or 10 cars each, which approached each other at a point where there was no passing track or any break in the continuous main line except a turntable, which was only long enough to hold one locomotive and one car, but not long enough to hold two locomotives. The incongruity of a turntable set directly into the main line was apparently too much for the credulity of some of our readers, who submitted solutions based upon the theory that the turntable was at the end of a short siding. This was not the case, according to the problem; the turntable was set directly into the main line. Naturally, this makes it a hypothetical rather than a practical operating problem, but it can be solved. By almost endless "sawing," the eastbound cars can be put on the east side of the turntable and the westbound cars put on the west side of the table. Since it would require a special supplement of the *Railway Age* to trace each switching move, we shall not go into detail, but shall be hopeful that our readers will take our word for it. There is a "catch" in the problem. This is that, since the two engines cannot pass, they must return to the points from which they came, so that the eastbound engine turns back with the westbound train and the westbound engine, in turn, takes care of the eastbound cars. To Robert Bruce of 195 Broadway, New York, who not only solved this problem correctly but who put his solution in such simple form that even this department could understand it, we offer a respectful tribute.

New Book . . .

Trains, by Robert Selph Henry. 110 pages, 9 in. by 12 in. Bound in cloth. Published by Bobbs-Merrill Company. Indianapolis, Ind. Price $2.50.

This is a hundred-page condensation of the most significant American items in the history of the railroad century, (and it takes us about ten years into the second century of this era); and it is exceedingly well done. Really good condensation is one of the most difficult of the literary arts, but the author of this book is a master of it. He had an unusual task to put his matter into 110 pages, for these 110 years have furnished an immense mass of material. He is a railroad man, and he seems to have read everything. If he has not actually worked in each of all the important departments of the business he has been very close to some one who has (or more than one), for evidence of unfamiliarity with technical details is hard to find in any of his descriptive matter. In either facts, or judgment or proofreading the mistakes are exceedingly few and unimportant.

As may be guessed from the title, the book was written primarily for boys, but the author never writes down to any childish level. It is a safe bet that any active boy who gets the book will read it through at least three times; and no reader of any age is likely to skip anything.

There are 15 chapters. The author says that he makes no attempt to say much about financial or political experiences; he deals with the train itself—what makes its wheels go round and how it gets there. He gives all necessary attention, however, to financial or other non-technical features, so far as required by the scope of his plan. The first four chapters deal with history, including sufficient English history to explain the start in America. The single chapter on the iron horse takes the reader from 1830 right through to the best practice on the Nashville, Chattanooga & St. Louis in August, 1933. The author is assistant to the vice-president and traffic manager of that road, and a good many bits of the information that he gives come from Southern territory—matter less familiar to the general reader than that concerning railroads farther north and west.

Illustrations in profusion are scattered throughout the whole book, and they constitute a history by themselves. Many of them are not closely tied to the text, and occasionally there is one without a title, but all are full of interest.

The fifth chapter jumps the Allegheny mountains, and the sixth takes us across the Mississippi. Next comes the "Transcontinental Dream," while chapter eight brings us back to a story of the Civil War, which, says the author, was the first railroad war in history. Chapters 10 and 11 introduce the reader to air brakes and other technicalities; to rails and roadway. These are quite full and instructive. For instance, 19 small photographs are given, showing each of the 19 principal types of locomotives that flourish or have flourished in America. Cars receive similar treatment. In the last chapter, entitled "Tomorrow's Promise," the author shows his full and intelligent sympathy and appreciation in connection with streamlined trains, wonderful economy in fuel and all the other up-to-the-minute improvements.

NEWS

Steam and Diesel-Electric Streamline Trains for B. & O.

P.W.A. loan will enable that road to put two high-speed units in operation

The steam locomotive is about to make its appearance in streamline form to demonstrate its possibilities in the way of high speed with light-weight cars alongside of trains propelled by Diesel-electric and electric locomotives. Within the next year passengers between New York and Washington will have their choice of three types of high-speed trains, which will cover the distance in about three and one-half hours.

Public Works Administrator Harold L. Ickes has announced the allotment of a loan of $900,000 to the Baltimore & Ohio to enable it to put two high-speed lightweight trains in operation, one of which will be the first streamline train to be operated by steam power, while the other will be operated by an 1,800-horsepower Diesel-electric engine, and both of which will be capable of 90 to 100 miles an hour, although it is not anticipated that it will be necessary to operate that fast on regular schedules. The amount of the loan will be used to purchase the Diesel-electric engine and 16 passenger coaches, the manufacture of which, it is estimated, will create 600,000 man-hours of employment. The steam locomotive is a 4-4-4 type Class J-1 locomotive, which will be converted by the Baltimore & Ohio at its own shops.

This is the second P. W. A. allotment for high-speed trains, the first being $400,000 to the New York, New Haven & Hartford for an articulated train to operate between Boston and Providence.

Both locomotives and cars have been designed to offer the least resistance to the air at high speeds, although the design is considerably different from that of the high-speed trains recently put into service by the Union Pacific and the Chicago, Burlington & Quincy, and the cars will not be as radically different from the standard passenger cars. Each will be an independent unit with two four-wheeled trucks. The superstructure of the cars in one train will be of U. S. S. Cor-ten, a corrosion-resistant, high-tensile steel, while that of the other will be aluminum alloy, thus enabling the Baltimore & Ohio to test the relative merits of both materials as well as to determine whether steam or Diesel-electric power is the better for the service in which these trains are to be used. Each train will consist of six cars and locomotive, four cars being held in reserve. Each will include a combination passenger-baggage car, two reclining seat cars, a combination lounge-dining car, a chair car and an observation chair car. The three coaches will seat 176 passengers, while the two chair cars will seat 32 passengers each.

Both cars and locomotives have been designed to lower the center of gravity by a reduction in the overall height of the cars and the reduction of the weight of the superstructure.

All cars will be completely air conditioned, permitting the windows to be set flush with the sides so that there will be no recesses in the car sides to create air resistance. The usual roof ventilators also will be eliminated, further reducing resistance. The rear end of each observation car will be tapered and rounded to reduce the rear end vacuum drag.

The steam locomotive will carry a jacket over the boiler to cover the air pumps, steam dome, piping and other projections that multiply air resistance on locomotives designed before air resistance was recognized as an important factor.

The total weight of the engine will be 213,800 pounds, of which 99,800 will be on the four driving wheels. The drivers will be 7 feet in diameter. Steam pressure will be 350 pounds per square inch, approximately 100 pounds higher than the pressure carried by most locomotives.

Railroad Labor Presses Legislative Campaign

With the controversy over railroad wages settled, representatives of the railroad labor organizations in Washington are increasing their efforts to obtain consideration in Congress for their legislative program. A special committee of the Railway Labor Executives' Association, headed by George M. Harrison, president of the Brotherhood of Railway Clerks, has announced its intention of remaining on the job until Congress adjourns. Hearings have been held on most of the bills on the program, but none have yet been reported out of committee, although Representative Withrow, of Wisconsin, has obtained a considerable number of signatures to a petition to discharge the committee on interstate and foreign commerce from further consideration of the six-hour day bill, on which hearings were held some time ago, so that the bill may be brought up before the House.

A sub-committee of the Senate committee on interstate commerce held a hearing on April 27 on S. 2846, a bill to require knowledge of flagging rules by certain employees, and another sub-committee was to continue on May 3 its hearings on the train-limit bill, S. 2625. Still another subcommittee is to hold hearings in the near future on S. 2518, to amend the hours of service law.

Would Analyze Merits of Waterway Projects

Co-ordinator Eastman sees need for care about adding to the surplus of transportation

The necessity for such an analysis of the merits of new waterway projects as will ensure the consideration of only such as can be economically justified, taking all the pertinent facts into consideration, was emphasized by Joseph B. Eastman, federal co-ordinator of transportation, in an address before the National Rivers and Harbors Congress at Washington on April 30. In view of the surplus in transportation facilities which exists, he said, it is clear that we should be careful about adding still more. In outlining the proposal included in his recent report for regulation of water carriers by the Interstate Commerce Commission, he said he was not suggesting that the commission should have control over the construction of new waterways, but that Congress should in some way provide for a very careful investigation of the economic soundness of a new project before it is undertaken.

"I realize that preliminary investigations are customary," he said, "but I am not sure that they go as far as they should go. The point is that the cost of construction of the new waterway and the annual cost of its maintenance are as much a part of the real cost to the public of the new transportation facilities as are the cost of construction and the cost of maintenance of the steamships or barges which operate over the waterway. I exclude, of course, in the computation any cost which would be incurred in any event for some other purpose, such as flood control. The water carriers do not bear the expense of constructing or maintaining the waterway, under our present practice, nevertheless it is there, it cannot be escaped, and in one way or another it is a burden upon the people of the country.

"The question is whether, taking all the real costs into consideration, the new facilities will provide cheaper or better transportation for the public than the agencies which already exist. The question is particularly important, for a new waterway may be used, not only for common carrier operations, but also, and often to a very great degree, for purely private operations. It is made even more important by what I suspect to be the character of the pressure which often exists for new inland waterways. In the old days, as I have already indicated, the railroads practically swept such waterways free of competing craft,

(*Continued on page 671*)

Arguments on Southern Passenger Fares Heard

Oral presentations before I. C. C. on applications to continue present reduced-rate experiments

Oral argument was heard by the full membership of the Interstate Commerce Commission on April 30 on the applications filed by carriers in southern territory for authority to continue their reduced-fare experiments for another six-month period from May 31, the principal issue being whether the Southern shall be allowed to continue its coach fares at the rate of approximately one and one-half cents a mile. Most of the other roads in the territory desire to maintain a rate of two cents a mile and to enter into an agreement with the bus operators for the maintenance of rates on that basis, with certain differentials for the bus lines in some instances. It was generally agreed, however, that if the Southern's rate is continued the other lines will meet it generally. The case comes before the commission because the railroads have found it necessary to ask for fourth-section and sixth-section relief.

In addition to the arguments by railroad counsel, Sol A. Rosenblatt, division administrator of the National Recovery Administration, strongly urged the commission to take action which will permit the carrying out of the tentative agreement of March 28, saying that the N.R.A. has approved a code designed to prevent unfair competition within the bus industry but that it cannot be fully effective unless a fair basis can be established between the bus industry and its competitors, the railroads. He said he regarded this agreement as "one of the most momentous and important ever negotiated in this country," and that all other parts of the country are awaiting what the commission may do. He said he did not appear as an advocate of the motor bus industry but to ask the commission "as an arm of the government to aid us, as an arm of the government, in establishing fair competition between competing industries." When he suggested that if the commission will deal with the rail rates the N.R.A. can deal with the bus rates at a proper differential below the rail rates, Commissioner Meyer asked on what basis he rested the statement that there must be a differential. When Mr. Rosenblatt referred to the slower service and greater discomforts of bus travel Commissioner Meyer asked if the bus industry admitted its service was inferior, but Mr. Rosenblatt said he was not representing the bus industry.

Commissioner Farrell said that what was troubling his mind was the question as to how the commission could interfere with what a railroad ses fit to do unless it is violating some provision of the interstate commerce act and when Mr. Rosenblatt said the commission was "dedicated to the public interest" he said he did not understand the commission has the right to substitute its view of the public interest for that of the law. Commissioner Porter also asked why the commission should not permit the Southern to continue its rate unless it was in some way shown to be in violation of law. Commissioner Aitchison asked if so low a rate would not represent discrimination against passengers in sleeping and parlor cars, which are charged rates ranging from 2 to 3 cents a mile. W. A. Northcutt, general solicitor of the Louisville & Nashville, replied to this that he would not say that the difference creates an unlawful discrimination but that as a practical matter a rate so low as a cent and one-half a mile in coaches would eventually break down the sleeping car rates and that whether the difference is unlawful or not the railroads could not permanently "get away with it."

H. L. Walker, commerce counsel, and S. R. Prince, general counsel, presented the argument for the Southern and in reply to assertions by other counsel that much of the increase in passenger traffic shown under the reduced rates was due to improved business conditions showed that even in March, 1933, when business conditions were at their worst, experiments conducted on particular lines with low fares resulted in very large increases in travel while the system generally was showing a decrease. Commissioner Mahaffie asked if there was anything to indicate that the earnings with the cent and one-half rate were sufficient to pay the out-of-pocket cost. Mr. Walker said that the revenues had been increased without increasing the expenses and that it was believed that with a still greater traffic the revenues will increase more than the expenses. "This fare has brought the people back to the railroads," he said. "You cannot explain it by business conditions."

Bus Companies May Complain Against Too Low Rates

By an administrative order made public on April 27 members of the motor bus industry are permitted to file complaints with the code authority against companies operating interstate buses below the lowest reasonable cost, resulting in unfair competition. It is ruled in the amendment that the code authority for the industry shall make a thorough investigation of the complaints and, after arriving at what it considers a reasonable rate, this rate is to be advertised for a period of five days and is then to become effective, unless otherwise ruled by the administration.

Division Basis for Rail-Barge Rates on Iron and Steel

Division 4 of the Interstate Commerce Commission has issued a report and order prescribing the establishment of divisions on joint rail-barge rates on iron and steel articles from the Pittsburgh district to lower Mississippi river crossings by the American Barge Line on the basis it had previously prescribed on an application of the Mississippi Valley Barge Line. The barge line and the railroads had agreed upon divisions on that basis except on iron and steel, and the commission had used the same basis in finding that a reasonable and equitable division would be 14 cents for the rail carriers and the remainder for the barge line from Pittsburgh to Memphis, and 13.4 cents for the rail lines on rates to New Orleans.

Water-Competitive Cuts in Rail Rates Sustained

U. S. Supreme Court upholds refusal of injunction to Mississippi Valley Barge Line

The Supreme Court of the United States, in a decision rendered on April 30, affirmed the decree of the lower court which had refused the application of the Mississippi Valley Barge Line Company for an injunction setting aside the order of the Interstate Commerce Commission of July 3, 1933, in which it authorized the Illinois Central and other railroads to put into effect reduced rates on sugar from Louisiana to Cincinnati and St. Louis to meet the competition of water lines which had obtained most of the traffic. The barge line had contended that the commission had been heedless of the mandate of Section 500 of the transportation act declaring the policy of Congress to promote, encourage and develop water transportation. The opinion by Justice Cardozo says in part:

"For the determination of this case there is no need to go into the question whether the declaration of the policy of Congress to foster rail and water transportation creates a new standard of duty for the commission in the ordering of rates, or is a source of private rights if the duty is ignored. That question does not become important until the policy of the lawmakers appears to have been flouted; and here it was obeyed. The admonition does not mean that carriers by rail shall be required to maintain a rate that is too high for fear that through the change they may cut into the profits of carriers by water. The most that it can mean, unless, conceivably, in circumstances of wanton or malicious injury, is that where carriers by land and water are brought within the range of the regulatory powers of the commission, as e.g., in establishing through routes or joint rates, there shall be impartial recognition and promotion of the interests of all.

"No discrimination of that kind is proved or even charged. The appellant makes its own rates from port to port, and may increase or lower them at will. What has been done by the commission affects the carriers by rail alone, at least in its immediate consequences. Transportation by water may feel the repercussions of regulation elsewhere. It has not been regulated directly. Even for transportation by land, the commission has done no more than establish a permissive minimum, and this a minimum sufficient to give assurance that the carriage of the sugar will not involve a loss. 'There is no reasonable doubt,' we are told in the report, 'that the proposed rates are high enough to pay more than the cost of service.'

"The appellant insists that it is fighting for its life, and that the effect of the new competition will be to drive it out of business. Nothing in the findings gives substance to the fear. There is significance in the fact that the Federal Barge Line, the leading carrier by water, submitted without protest."

Associated Traffic Clubs Meeting at Birmingham

Declares for private ownership and for adequate regulation of all transport

A resolution favoring private ownership and operation of the railroads, with adequate supervision and regulation by the government of all common carriers, whether rail, motor truck or water, was adopted at the spring meeting of the Associated Traffic Clubs of America at Birmingham, Ala., on April 24-25. The program was designed to bring about a consideration of all forms of transportation. It included addresses by Prof. Emory R. Johnson on Transportation legislation and government ownership; by J. L. Keeshin, president of the National Highway Freight Association, on Transportation legislation and motor trucks; by John McAuliffe, president of the Isthmian Steamship Company, on Transportation legislation and water carriers; and by Judge R. V. Fletcher, general counsel of the association of railway executives, on Transportation legislation and the rail carriers. The convention voted to hold its annual meeting in Columbus, Ohio, next fall.

According to Professor Johnson, government ownership and operation of the railroads would not be economical or efficient and successful private ownership and operation depends on Congress, public opinion and the regulation of other transportation systems. The progressives, he said, are in the saddle at Washington and if their program of a six-hour day, limitation of train lengths and employee insurance, provided for in bills pending in Congress were to be put in force, many of the railroads would be forced into bankruptcy. If the government were to take over the railroads at the $26,250,000,000 Interstate Commerce Commission valuation, (1933) he said, it would increase its debt to an amount that would jeopardize its borrowing power and materially affect general business.

Mr. Keeshin made an appeal to President Roosevelt to place highway transport under federal regulation as an immediate move to solve the problems of the trucking industry. As spokesman of his organization, he gave his endorsement to the federal co-ordinator of transportation in his advocacy of federal regulation for motor transport and referred to a speech on the subject by the President at Salt Lake City, Utah, in the 1932 campaign, in which he declared that, if elected, it would be his purpose to place transportation over the highways competing with rail carriers under federal regulation. Mr. Keeshin called upon the chief executive to follow through and support the co-ordinator of transportation in his efforts to secure the passage of a federal regulatory measure. He accused certain groups opposed to federal regulation of being interested primarily in the sale of trucks and trailers. Other groups, not truck operators, were opposing federal regulation, he declared, and these groups have had sufficient power to influence some of the trucking organizations against the best interests of the truck operators. "Through these methods," he continued, "there has grown a great menace to the industry—the wildcat, irresponsible operator, who breaks down legitimate business and shatters every type of safety precaution. The trucking industry has been damned by the motoring public as well as by shippers for accidents that have occurred. Many of these have been due to neglect and carelessness of a certain class of operators. Most of these accidents were not brought about by vehicles operated on the highways by well-established, responsible and properly-supervised agencies in which drivers are well schooled and their equipment properly maintained and inspected to promote safety. They were due to the individual truck owner operating for a certain type of broker operator who had been forced to work the trucks from 16 to 24 hrs. and to sit continually behind the wheel for periods ranging from 24 to 48 hrs. because the revenue he was receiving was not sufficient to warrant hiring another man to drive the vehicle.

"It is my firm belief that under proper federal regulation the common carrier highway group would be in a position to operate on a basis of lower costs than they are now operating and operate more successfully and satisfactorily, giving shippers better service and promoting public safety. The first thing to be done is to put the highway transport industry under regulation of the Interstate Commerce Commission. Federal regulation is necessary if we are to have co-ordination of all forms of transportation, to protect the public against discrimination and extortion, to stabilize the motor transport industry and to insure adequate and efficient service at the lowest competitive cost."

Mr. McAuliffe favored government regulation of foreign, coastwise and inland waterway transportation with certain reservations. Judge Fletcher endorsed the recommendation of Co-ordinator Joseph B. Eastman in his report to the Interstate Commerce Commission, recommending a single government regulatory agency for transportation and for a policy of co-ordination of all forms of transportation. He expressed the belief that some form of competition should be maintained, that the anti-trust laws should be modified to permit intelligent co-ordination and that the carriers should be allowed to charge rates that will result in a reasonable return on the investment. An abstract of his address appeared in the *Railway Age* of April 24.

R. C. C. Has Repaid $14,038,634

The Railroad Credit Corporation has reported to the Interstate Commerce Commission that $14,038,634, or 19 per cent of the $73,854,111 fund created by pooling the proceeds of the emergency freight rates through March 31, 1933, has been repaid to the participating carriers up to April 30 this year. Seven distributions have been made to the participating carriers since the corporation began on June 1, 1933, the liquidation of its affairs, the largest refund having been made on April 30, at which time it amounted to $5,166,500, or 7 per cent. Of the total amount distributed by the corporation, $5,986,357 has been repaid in cash, and $8,052,277 has been credited on obligations due the corporation.

Durable Goods Industries Committee Submits Report

Comments on 12 points suggested by General Johnson at March 5 Code Conferences

The Durable Goods Industries Committee of which George H. Houston, president of the Baldwin Locomotive Works, is chairman made public on April 30 a report embracing its comment on the twelve points submitted to the conference of code authorities and trade association committees at Washington, D. C., March 5 by National Recovery Administrator Hugh S. Johnson. The twelve points for discussion suggested by General Johnson are as follows:

1. A more uniform and equitable rule of national price stabilization in those cases where it is necessary to maintain wages at a decent standard against the certain results of predatory and cut-throat competition, and further insurance against increase of price faster and further than increase of purchasing power.
2. A more effective rule on costs for the purposes of maintaining rules against sales below costs of production.
3. Uniformity of wages and hourly rates in competitive industries.
4. Uniform classification of areas for the purpose of the North-South differentials.
5. Further reductions in hours per week and further increase in hourly wages.
6. Certainty of protection against monopoly control and oppression of small enterprise, and, especially, the inclusion in codes of adequate buying (as well as selling) provision to guard against oppression of small business.
7. A much improved method for securing prompt and effective compliance.
8. A safe method of financing code administration without racketeering and abuse.
9. Elimination of inconsistent or conflicting provisions among various codes.
10. Adequate labor and consumer representation in an advisory capacity on code authorities.
11. Uniformity of governmental representation on code authorities.
12. Wider use of mechanism for settling labor disputes in connection with code administration.

Because of their close correlation, the Committee's report grouped points 1, 2 and 6 and points 7 and 12. Discussing the minimum wage for common labor, the report recognizes that this "is a subject for consideration from the social rather than the economic point of view" and "accepts the principle that, for the present emergency, it is necessary to maintain wages at a decent standard against the certain results of predatory and cut-throat competition." As to minimum prices it is found that "Whatever the merits of unrestricted competition may be under ordinary circumstances, experience has shown that some degree of price stabilization in many industries is necessary in an emergency such as the present if wages are to be maintained at a decent level." No specific form of price stabilization is suggested, however, since requirements in this connection depend entirely upon "the individual characteristics of each industry." Next comes an outline of pricing methods and their effects, followed by general comment which includes a finding, with reference to point 6, that "Efficiently operated small companies have little to fear from larger competitors, especially in periods of low sales volume, when the larger mechanized companies usually suffer from heavy overhead charges."

The committee was unable to find any practicable formula which might be applied rigidly in connection with point 3—

(*Continued on page 670*)

"New Deal" Needed in Transport Says Taylor

Government curtailing other surpluses while it adds to that in transportation

In the face of the dilemma occasioned by "too much of everything and not enough for everybody," the government has declared a war on surpluses of everything but transportation, said Harry Guy Taylor, Commissioner of Western Railroads, in a recent address before the Chicago Association of Commerce. If surpluses are bad in agriculture and manufacturing, they are equally bad in transportation, and, in the interest of consistency the government should curtail them in the latter case instead of adding enormously to them as it is doing. The "new deal," he said, contemplates equality of opportunity and equity of treatment for all business. The railroads, therefore, not only do not object to it but urge its immediate application to transportation.

"There is," he said, "a plague of too much wheat and the farmer is paid to reduce his acreage; even the three little pigs and six million of their brothers and sisters are called upon to expiate their surplus on the altar of the new economics. On another front, the army of codes is attacking the enemy with equal vigor, and the production of oil, coal, lumber, cement and every sort of manufactured commodity is being subjected to rigid restriction. The declaration of war proclaims that a surplus paralyzes the orderly processes of business and ultimately destroys business. Wherever discovered, a surplus is to be pursued to its lair and annihilated.

"Apparently, however, there is one major exception—one harmless surplus. If I interpret the strategy of this great offensive, there cannot be too much of transportation. On the contrary, the energies of government should be devoted to the production of still more transportation, and if private capital declines to co-operate, government itself will subsidize and even operate additional agencies for the movement of persons and commodities.

"At this point permit me to submit a few figures covering the investment in all forms of transportation in the United States:

Public Highways and the motor vehicles thereon	$28,000,000,000
Railroads	26,350,000,000
Inland Waterways	2,000,000,000
Pipe Lines	3,000,000,000
Airways	1,000,000,000
Total	$60,350,000,000

These are approximate figures, but conservative. Does that aggregate investment provide all the transportation this country requires at present, with reasonable provision for future growth? Some of you will be startled when I say that the railroads alone could handle today all the passengers and freight offered for transportation and that their facilities were adequate in the peak year of 1929, if we exclude the traffic on the Great Lakes. There is a very great surplus of transportation, involving at least thirty billion dollars investment, and that the shippers and taxpayers are now required to carry this unnecessary burden.

"Instead of an effort to curtail expansion in transportation, the government is actively participating, on its own initiative, in the construction of new facilities. In 1933 public expenditures for highway extensions aggregated two billion dollars. It is much the same with waterways. The program for improving these questionable forms of transportation has been greatly expanded and more than $174,312,000 will be devoted by the federal government in the next year to their improvement and extension.

"I wonder if the time has not come when every new transportation project should be subjected to the same scrutiny as is given to every railroad extension by the Interstate Commerce Commission. No one would today think of constructing a railroad to parallel any of our railroad systems. Even if such a project were promoted it could never secure the approval of the Commission. Within very recent years that body condemned a plan of a prominent railway operator to construct a new line across the State of Pennsylvania on the ground that it would result in an unnecessary and extravagant duplication of transportation facilities. Thousands of miles of costly highways have been built in that same territory since that decision, however. If we continue to expand our facilities in defiance of any possible economic need, it seems to me we will be condemned, for this generation at least, to carry a burden in taxes and rates which will prove a handicap to business recovery.

"The railways' competitors on the highways argue that license fees and other forms of taxes imposed upon them are equal each year to the annual cost of construction of the public highways. There may be some doubt as to this claim, but I accept it for the purpose of this statement. If it is true that construction of the highway absorbs all of the money paid by the users of that highway, then it follows that they pay no taxes for the support of the government and, of course, no interest on the value of the highway. The railroads feel that this subjects them to a marked discrimination and renders competition with the commercial vehicles on the highway difficult and at times impossible."

Club Meetings

The Car Foremen's Association of Chicago will hold its next meeting at 8 p. m. daylight-saving time, Monday, May 14, at La Salle Hotel, Chicago. W. E. Dunham, superintendent of the car department, C. & N. W., will present a paper on accident prevention in the car department.

The Canadian Railway Club will hold its next meeting on Monday evening, May 14, at the Windsor Hotel, Montreal. W. Walker, of the C. N. R. shops, Montreal, will present a paper on English vs. Canadian standards of construction of locomotives and cars.

The Southern and Southwestern Railway Club will hold its next meeting at the Ansley Hotel, Atlanta, Ga., on Thursday, May 17, at 10 a. m. A representative of the Air Reduction Sales Company will present a paper on maintenance-of-way welding.

Gen. Atterbury Discusses P. R. R. Labor Policies

Considers manner in which Employee Representation Plan is affected by Eastman policies

General W. W. Atterbury, president of the Pennsylvania, was on May 1 the guest of honor at a dinner tendered by the railroad's Chicago General Office Association at the Hotel Knickerbocker, Chicago. As the principal speaker of the evening, he discussed the labor policies of the Pennsylvania and its Employee Representation Plan, and the manner in which that plan is affected by the policies of the federal co-ordinator of transportation and railroad legislation pending in Congress.

His address follows in part:

"On June 26, 1919, shortly after returning from France, I addressed a meeting of the Pennsylvania Railroad Women's Division for War Relief, in Philadelphia. In what I said, I tried to set forth my conception of the rights of employees. Among them, the most important, for the purpose of this discussion tonight, was what I defined as the right to, 'A voice in determining the rules and regulations under which I should work.' In that definition of one of the rights of those who labor lay the germ of the idea which not long afterward led me to ask the employees of our railroad to join with the management in establishing our system of employee representation. As all of you know, for thirteen years, it has proved an effective and unfailing instrument of industrial peace among us. To my mind, the secret of its consistent success is found in three facts:

"First: The employees themselves choose their own representatives, from among their own number, to deal with the representatives of the management;

"Second: The discussions are absolutely free and unhampered, based as far as possible on jointly established facts;

"Third: The final judgment in every case lies with a joint tribunal composed of equal numbers of employee and management representatives, with equal voting power on each side.

"The question which now faces us is whether we shall be allowed to keep on with this plan which has worked so well, or whether it shall be taken away from us and another system substituted in which our employees will be represented by men with whose selection they have little or nothing to do, and who may not be their fellow-workers. If that ever comes about, it will be through outside and not inside pressure, for from the start the plan has been overwhelmingly endorsed by the workers of this railroad, and there is not the slightest indication they have changed their minds.

"Please do not think for a moment that I regard intervention as in itself open to criticism. On the contrary, I think it is highly desirable that a sound method of mediation and arbitration should be provided by law to step in where mutual agreement fails and a strike is threatened. This

is needed for the welfare of both the employees and the railroad companies, and to protect the public from interruption of the service.

"What I do object to is any attempt to scrap a sound piece of machinery, which our employees and management have set up between themselves, for the purpose of adjusting differences by the time-honored method of sitting down and talking things over.

"The federal co-ordinator of transportation, Honorable Joseph B. Eastman, is a man whose personal integrity and sincerity are beyond question. Nevertheless, I am compelled to differ with him entirely on his attitude toward our representation plan. His views are based upon certain technical legal deductions which are so intricate that only a specially trained lawyer could adequately explain them, and I doubt then whether they would be fully understood by a lay audience. I will therefore do no more than state his position, and tell what he is trying to do and what it means to us, of the Pennsylvania.

"A section of the Emergency Railroad Transportation Act of 1933 requires compliance with certain provisions of an amendment passed last year to the National Bankruptcy Act. One of these provisions forbids any judge or trustee in a bankruptcy proceeding 'to use the funds of the railroad under his jurisdiction, in maintaining so-called company unions . . .' The federal co-ordinator has construed this to apply to railroads in the hands of their own managements, as well as those in the hands of the courts. This we contend is incorrect. The question has not been tested or decided. The co-ordinator proposes to fortify his viewpoint through the enactment of new legislation.

"The co-ordinator further takes the position that our Employees Representation Plan has established a system of company unions, one for each craft embraced, and is therefore in violation of the Emergency Railroad Transportation Act as he interprets it. This we also deny. We claim that what we have set up is a machinery of contract and adjustment, mutually established by our employees and management, and that this machinery is correctly described by the name we have given it, 'Employee Representation.' No one has to join anything to take part in it. Therefore it cannot be a union of any kind, or a system of unions. It is merely a working plan to adjust differences, and nothing more.

"The important point, I think, is that there is no claim on the co-ordinator's part that the plan is not working satisfactorily or that there is any agitation within our ranks for its abandonment. It is attacked purely on grounds of legal technicality.

"There have been many exchanges of views between the co-ordinator and our officers, and the points as to which we do not agree are quite clear. While we differ completely as to those points, each side respects the sincerity of the other's views, though believing them to be wrong.

"It is an interesting fact that in the hearings before the Senate committee on the pending Dill-Eastman Bill both the federal co-ordinator, Mr. Eastman, and the railroads of the country, as represented by our vice-president, Mr. Clement, recognized the same two defects in the Railway Labor Act of 1926. These defects are that there is no provision for the compulsory formation of adjustment boards, and that the boards are not empowered to make decisions which are conclusive and legally enforceable.

"The co-ordinator prefers national boards. The railroads, including our own, think regional boards, with provision for permissive system boards, more desirable, because their members would be familiar with local conditions.

"The co-ordinator does not think a railroad should be allowed to make up lost time and expenses to representatives while on adjustment work, because he thinks that would tend to make the representatives favorable to the management. The railroad position is that this is a mistake, and that when representatives are engaged on adjustment work they are rendering services in connection with the railroad's business and may, by agreement, be compensated for lost time and expenses as part of the cost of providing transportation service to the public.

"These are the broad issues. To me it seems that if the Dill-Eastman Bill becomes law, the adjustment of railroad employee differences will be greatly hindered and not helped, and that injustice will be done to many workers.

"The railroads are not opposing unionism, or the principle of unionism. We all want industrial peace on the Pennsylvania. We have a plan which has proved its worth over thirteen years. The best proof is that from 1921 to the close of 1933 nearly 86,000 cases were handled under this plan, of which 2,651 went to the joint reviewing committees for settlement. The remainder were mutually settled without necessity for appeal to the reviewing committees. There is today not a single unadjusted grievance or controversy between the men and management of the Pennsylvania, except those cases which are in actual process of negotiation.

"That is a record we can stand on, and there is every reason to believe that a plan which has served so well and so unfailingly in the past will continue to do so in the future if it is not taken from us.

"What the employees and the management have done on this railroad is to set up a common sense arrangement for settling amicably any differences that may arise between us. No one can honestly say that that arrangement has not worked satisfactorily to those of us whose lives are devoted to Pennsylvania service. It is interesting to note, too, that what we have done here is altogether in line with the broad policy set forth recently by the President of the United States when he expressed the hope, in bringing about a settlement of the automobile labor situation, that the principles of that settlement would 'develop into a kind of works council in industry in which all groups of employees, whatever may be their choice of organization or *form of representation*, may participate in joint conferences with their employers.'"

Higher Railroad Earnings Necessary

The opinion that a higher level of railroad earnings will be necessary for the future than has prevailed in the past, if the railroads are to be supported by private capital, was expressed by Co-ordinator Eastman in an address before the National Association of Commercial Organization Secretaries at Washington, D. C., on the evening of May 2. The address consisted largely of an outline of the activities of the co-ordinator's organization during the past year. Mr. Eastman said in part:

"The Federal Co-ordinator of Transportation, with his large and imposing title, has now been functioning for 11 months and has just been given a lease of life for 13 more months. The Co-ordinator is not running the railroads, as many seem to think. He has two broad but very definite duties. The first is to do what he can to eliminate waste in the operation of the railroads, and particularly the waste which is caused by their failure to co-operate and co-ordinate their efforts. The second is to study the entire transportation situation, including all forms of transportation and, specifically, labor conditions, and recommend such further legislation as he thinks the public interest requires.

"I shall discuss, first, the matter of waste. Its elimination involves, broadly speaking, the saving of labor, and before the act was passed an amendment was tacked on which imposes very drastic and effective restrictions against reduction in railroad employment by reason of anything done under the act. I was opposed to the amendment then, but in view of what has happened since, I am inclined to think that it was wise. I have gone ahead with the search for waste, however, just as though there had been no amendment, because when the country knows what the waste is, it will be eventually eliminated. In fact it must be if the railroads are to meet successfully the competition by which they are now confronted.

"I can illustrate the work which is being done by a report which we have recently issued on merchandise traffic, including less-than-carload freight, express matter, and the traffic of the so-called car forwarders. Even with the reduction in rates, it is estimated that this new plan would yield a very large net return to the railroads. It is now being studied by them, and it is possible that a different plan will eventually be adopted. I think, however, that few will disagree with the statement that the report is certain to lead to extensive and beneficial changes in present methods of handling and charging for this merchandise traffic.

"Similar surveys are being made of carload freight service and passenger traffic. They are well under way, and reports will be made in due season.

"How far we can go in the study of new forms of equipment with the resources at our command I am not sure, but at least we can pave the way to the necessary study. The fact is that the designers and inventors are extraordinarily busy, and some of their work is very promising indeed. My own guess is that we are on the verge of important and rather radical

changes in both freight and passenger equipment and service.

"Following these traffic surveys will be a study, which has not yet been begun, of the methods which are used by the railroads in advertising and soliciting and selling their services. Related to the traffic surveys is a study of cost finding."

Discussing the work of his different sections, Mr. Eastman said the Section of Purchases has been instrumental in starting survey of the equipment of railroad shops from the point of view of the machine tool industry. It has made a study on the ground of the methods used in railroad stores departments, on which a report will soon be made. It is about to embark on a study of the methods used in the reclamation and disposition of scrap. Referring to the work of the Labor Relations Section, Mr. Eastman added that "as business and traffic conditions improve, I have strong hope that the employees will respond to the need for operating the railroads with the utmost efficiency and economy. They are part of the industry and can only prosper as it prospers, and with the competition by which they are now confronted the railroads must, if they are to hold and gain traffic, provide the best possible service at the lowest reasonable cost. The employees will, I believe, ultimately recognize this fact. They must, possible service at the lowest reasonable protection against the hardships of sudden economy changes and greater opportunity for stable employment and relief in old age than they now enjoy."

Regarding his recommendations for further legislation, Mr. Eastman said "the subject of public ownership and operation was discussed fully and frankly, for it is a subject about which the country ought to be thinking. If the railroads are to be supported by private capital, a higher level of earnings will be necessary for the future, in my opinion, than has prevailed in the past. In view of the difficulties ahead of the railroads, it is not at all impossible that we may, like many other countries, find ourselves in a situation where we can no longer depend on private enterprise to carry on this public business of transportation. If that time should arrive, we must be prepared for it. My own personal conviction, based on considerable thought, research and experience, is that it is entirely possible to devise a plan for public ownership and operation which will avoid many of the dangers which are commonly believed to be inherent in it.

"It is hardly necessary to say that I realize that the particular bills which I have recommended for the regulation of water carriers and motor carriers are not perfect. Some amendments have already been suggested which I know are improvements, and no doubt others will be offered. My mind is entirely open on such details. On the major proposition, that centralized regulation is sorely needed, it is closed."

Wage Statistics for February

Class I railways excluding switching and terminal companies reported to the Interstate Commerce Commission a total of 975,924 employees as of the middle of February. This was 34,280, or 3.65 per cent, greater than the number reported for February, 1933. The total number of hours paid for was 9.3 per cent greater and the total compensation 8.69 per cent greater in February, 1934, than in February, 1933. The total compensation for February was $116,126,505.

Federal Co-ordinator Continued for Another Year

President Roosevelt on May 2 issued a proclamation extending for another year from June 16 the life of Title I of the emergency transportation act, 1933, providing for the office of the federal co-ordinator of transportation. The law provided that this part should cease to have effect at the end of one year after its effective date unless extended by a proclamation of the President for one year or any part thereof.

Illinois Grade Crossing Hearings Again Postponed

Hearings before the Illinois Commerce Commission scheduled for April 26 at Chicago on an order directing all principal railways in the state to show cause why a program for the elimination and improvement of grade crossings should not be inaugurated, were postponed at the request of railroad representatives until May 16, to give engineers of the railroads and the commission more time to study the problem. Originally, the hearings were to be held at Springfield on April 4 and 5 with subsequent hearings at Chicago on April 13 and 14.

District Attorney Seeks to Collect Income Tax from Frisco and M. P.

Permission to intervene in the bankruptcy cases involving the Missouri Pacific and the St. Louis-San Francisco has been filed by Harry C. Blanton, United States district attorney in the district court at St. Louis, Mo., for the purpose of collecting additional unpaid income taxes alleged to be due from the railroads. The amount sought from the Frisco is $376,-237; from the Missouri Pacific, $4,257,089; from the New Orleans, Texas & Mexico, $1,140,767; and from the Houston North Shore, the Beaumont Sour Lake & Western, the International-Great Northern, the San Antonio, Uvalde & Gulf and the St. Louis, Brownsville & Mexico, $20,538 each.

Erie Suburban Fares Sustained

The Interstate Commerce Commission has dismissed the complaint of the "Metropolitan League of Erie Commuters" that prices of monthly tickets to and from New York City are too high. The complaint asked for a reduction of 40 per cent in 60-trip tickets, a part of the plea being that many ticket holders go to their work only five days in a week.

The Commission found that, though the fares were in some cases a little higher than those on other roads and in other cases a little lower, the rates on the whole were not unreasonable. The Erie fares were advanced 15 per cent on January 1, 1933, and the complaint has been pending about a year.

The fares, says the report, compare favorably with similar fares to and from Boston and Philadelphia.

Trucking Industry Forming Nation-Wide Organization Under N.R.A. Code

Under the provisions of its N. R. A. code the motor trucking industry is building up an elaborate organization of national, regional, state, and division code authorities, more or less affiliated with national and state associations, which are not only to function in administering the code and in connection with the efforts to stabilize rates and employment conditions within the industry, but apparently are planning to become active in controversies with the railroads before the Interstate Commerce Commission. The American Trucking Associations, Inc., recently issued a bulletin to its members announcing that the National Code Authority for the Industry desired all for-hire operators in official territory to file immediately with their respective state code authorities their interstate and intrastate minima for rates and tariffs, stating that this was deemed necessary because of the report proposed by Examiner Mohundro and R. V. Pitts, assistant director of the Bureau of Traffic, to the Interstate Commerce Commission recommending that railroads in official territory be granted fourth-section relief in establishing truck-competitive rates, and that "the trucking industry will resist as vigorously as it can adoption of this report by the commission." Filing of rates immediately was urged as essential "to provide facts to fight this proposal."

The activities of the various code authorities throughout the country and to some extent those of the national and state associations are to be financed through an assessment to be made and enforced with the full authority of the N. R. A. The code authorizes the National Code Authority, which in the first instance was mainly chosen by the board of trustees of the American Trucking Associations, Inc., "to function through such trade associations and other agencies as it deems proper and through the regional, state and divisional code authorities for carrying out any of its activities provided herein and to pay such code authorities, trade associations and agencies the cost thereof..."

It was recently proposed to make an assessment for the budget for this purpose, estimated at $2,000,000 to $3,000,000, of $3 per vehicle for for-hire trucks and 90 cents per vehicle for others, but many protests were made at a hearing before a deputy administrator of the N. R. A. on April 18, particularly against the 90-cent assessment, and a decision in the matter is awaited from General Johnson. The N. R. A. has already issued a press notice indicating early issuance of an administrative order staying registration of the not-for-hire vehicles pending the outcome of conferences but allowing the code authority to proceed with the collection of the $3 assessment against for-hire vehicles.

Since there is no clear indication in the code itself that the expenditure of this sum by the various code authorities was to be supervised by the N. R. A., some questions have been raised as to whether some of it might not be made available for propaganda purposes or activities in connection with legislation, but the President, in an executive order, has authorized the Administrator to "define the procedure under

Continued on next left-hand page

SPEED

calls for modern power

A new factor—SPEED—is making all but the most modern locomotives obsolete. Ten to twenty years ago freight locomotives were built to haul a heavy drag at 15 miles per hour. But operating conditions today demand freight train speeds of 30 to 40 miles per hour. Only Super-Power Locomotives with high boiler horsepower can produce the desired result. Retire the obsolete road-cloggers in favor of modern locomotives designed for modern railroading.

LIMA LOCOMOTIVE WORKS
INCORPORATED

LIMA LIMA LOCOMOTIVE WORKS INCORPORATED OHIO

which rates and budgets will be approved," and so many protests have been made in various industries regarding the amount of the proposed assessments for code administration that the N. R. A. has issued a statement indicating its intention to supervise the budgets closely.

At the hearing Ted V. Rodgers, president of the National Trucking Association, said that the proposed 90-cent charge was simply to cover the cost of identification insignia, reports and handling the information appearing thereon and that it did not include any administration expense for administration of the trucking code.

"Snow-Ice" Used on G. M. & N. for Top Icing

Cabbage shippers in the Mobile district on the Gulf, Mobile & Northern this season are using "snow ice," which is blown into the lading to supplant top icing. Electric motor-driven machines mounted upon light trucks for movement to car doors pulverize 100-lb. blocks of ice and blow the small particles through a hose and over the cabbage crates. It is contended that the proximity of the ice to the cabbages protects them for two weeks; the "snow" drops down between crates and lodges on the cabbage as the cars move. Thus the crushing effect of top icing is eliminated. A recent check shows that in the case of lettuce shipments, 6.8 per cent of the boxes are broken when block ice is used for top icing and only 3.8 per cent when crushed ice is used.

Increases in Western Class Rates Recommended

Examiners Koebel and Bardwell of the Interstate Commerce Commission have submitted a proposed report recommending considerable further revision in western trunk line class rates, designed to increase revenues, with a finding that the railroads have sustained their claims for need of increased revenues and that the increased revenues yielded by the readjustments under review are less than were anticipated and less than may be reasonably expected from this traffic. They recommend that the customary plan for constructing class-rate distance scales be adhered to in the main, but modified in view of motor truck operations by reducing the rate of progression and measure for relatively short hauls and increasing them for longer hauls.

Senate Bill Would Authorize I. C. C. to Fix Air-Mail Rates

The bill passed by the Senate on April 28, providing for temporary air-mail contracts, would empower the Interstate Commerce Commission to fix and determine, as soon as practicable, the public convenience and necessity for all air-transportation routes and the fair and reasonable future rates of compensation for the transportation of mail matter by airplane common carriers and the service connected therewith, but not in excess of rates provided in the bill, to take effect upon the expiration of the outstanding contracts. The commission would be authorized to prescribe the methods for ascertaining the rates of compensation, by weight or space or both. Pending the action of the commission air-mail contractors would continue to carry the mail for nine months at the rates fixed in the contracts.

New York Railroad Club Plans for "Electrical Night"

The next meeting of the New York Railroad Club, to be held on May 18, at the auditorium of the Engineering Societies building, 29 West Thirty-Ninth street, will be designated as "Electrical Night." The tentative program includes papers describing in detail the light-weight high-speed multiple-section train recently built by the Pullman Car & Manufacturing Company for the Brooklyn Manhattan Transit System. The car and its auxiliaries will be described by W. H. Mussey, general mechanical engineer, Pullman Car & Manufacturing Company; the braking equipment by S. L. Williams, district engineer, Westinghouse Air Brake Company; and the electrical equipment by W. J. Clardy, railway engineer, Westinghouse Electric & Manufacturing Company. Motion pictures of the train will also be shown.

Proposed Grain Rate Reduction

Hearings on a proposal of the Central Freight Association, the Trunk Line Association and the New England Freight Association to reduce the carload domestic local, proportional and reshipping rates on grain, grain products and grain by-products from the Mississippi river, Illinois and the Central Freight Association territories and the western termini of eastern trunk lines to points east thereof, were held at Chicago on April 24. Specifically, the proposal provides for a reduction of 5½ cents per 100 lb. on grain and grain products from the Chicago switching district to New York, with the usual differentials applying to other North Atlantic ports, and a suitable adjustment on interior points in Trunk Line territory. The rates on grain by-products will be reduced 5½ cents per 100 lb. subject to the grain products rates as minima.

The proposal is an attempt to adjust the rates so that shippers in these territories can compete in the eastern markets with the Pacific Northwest and other sections served by water transportation. At the hearing it was shown that flour shipments from the Pacific Northwest through the Panama canal had increased from 65,831 long tons during the fiscal year ending June 30, 1932, to 120,821 long tons for the fiscal year ending June 30, 1933. In addition, it was estimated that from July 1, 1933, to April 1, 1934, the flour movements from the North Pacific to the east coast reached a total of 190,000 tons. It was also shown that water lines operating from gulf ports to the North Atlantic carried a total of 174,650 short tons from Texas ports during 1933.

Equipment on Order

Class I railroads on April 1 had 6,512 new freight cars on order, according to reports received by the Car Service Division of the American Railway Association. On the same day last year 1,873 new freight cars were on order and on the same date two years ago, there were 2,974. The railroads on April 1 also had 21 new steam locomotives on order and 25 electric locomotives. New steam locomotives on order on April 1, 1933, totaled 3 and on the same date in 1932, there were 36 on order.

In the first three months of 1934, the railroads installed 231 new freight cars. In the same period last year, 577 new cars were placed in service and for the same period two years ago, the total number installed was 1,079. While no new steam locomotives were placed in service in the first three months of 1934, reports showed that 107 new electric locomotives were installed. The railroads in the first three months of 1933 installed one new steam locomotive and three in the corresponding period in 1932.

Freight cars or locomotives leased or otherwise acquired are not included in the above figures.

Railroads Permitted to File Consolidated Tax Returns

An amendment to the tax bill permitting railroad systems to file consolidated returns was included in the conference report on the bill filed in the House on April 30 after the Senate had passed the bill prohibiting entirely the privilege of filing consolidated returns. The amendment provides that an affiliated group of corporations whose principal business is that of a common carrier by railroad or whose assets consist principally of stock in such corporations and which do not themselves operate a business other than that of a common carrier by railroad shall have the privilege of making a consolidated return for the taxable year in lieu of separate returns. The definition of "affiliated groups" applies to "one or more chains of corporations connected through stock ownership with a common parent corporation" if at least 95 per cent of the stock of each of the corporations (except the common parent corporation) is owned directly by one or more of the other corporations, and the common parent corporation owns directly at least 95 per cent of the stock of at least one of the other corporations. It was stated that the committee felt that an exception ought to be made in the case of the railroads as they are required by law to incorporate separately in many states and because they are under federal supervision.

Organize to Study Purchases

Plans of the Federal Co-ordinator to establish regional boards to study orders issued by railroads for purchases were advanced on May 1 when the board of review recently appointed by the Purchases and Stores Division, American Railway Association, completed arrangements with six Chicago railroads to furnish copies of all orders issued after May 1. The railroads are the Atchison, Topeka & Santa Fe, the Chicago, Burlington & Quincy, the Chicago, Milwaukee, St. Paul & Pacific, the Chicago & North Western, the Chicago, Rock Island & Pacific and the Illinois Central.

The orders will be received at the headquarters of the American Railway Association at Chicago where an office force

Continued on next left-hand page

SPEEDY FREIGHT SERVICE USES BOOSTER LOCOMOTIVES

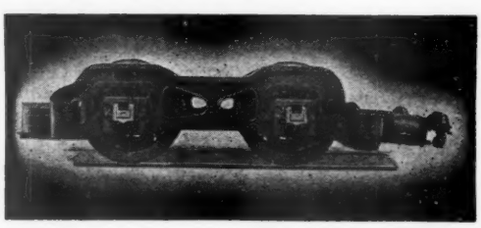
SHIPPERS want speed. First-morning deliveries between points 200 to 300 miles apart are winning back lost traffic for the railroads.

In speeding up these operations modern locomotives, Booster-equipped, are in general use.

All over the country, progressive railroads are offering faster freight service and using Booster locomotives to insure dependable, "on-time" transportation.

The Locomotive Booster starts heavy loads easily, accelerates quickly to road speed and is always available for emergencies that demand sudden increases in power.

In addition, The Locomotive Booster, when incorporated in the original design, makes possible a reduction in locomotive maintenance that soon returns its cost. Without the Booster a locomotive must have the equivalent of another pair of drivers that is in use all the time. Increased maintenance and fuel cost follow.



FRANKLIN RAILWAY SUPPLY COMPANY, Inc.

NEW YORK CHICAGO MONTREAL

is now being organized to classify and study the records with particular reference to standards, routing and prices. The board of review consists of Chairman F. D. Reed, purchasing agent of the Rock Island; M. J. Collins, general purchasing agent of the Santa Fe.; A. C. Mann, vice-president of the Illinois Central; C. E. Walsh, general purchasing agent of the Pennsylvania; and G. E. Scott, purchasing agent of the Missouri-Kansas-Texas. C. W. Brown of the coordinator's staff, and W. J. Farrell, secretary of the Purchases and Stores Division, participated in the arrangements.

Canadian Lines' Revenues Increase

Operating revenues of the all-inclusive Canadian National in March, showed an increase of $2,879,433, reaching a total of $14,278,648, compared with $11,399,215 in March, 1933. Operating expenses totaled $12,679,689, an increase of $1,025,167 over March, 1933, leaving net operating revenue of $1,598,959 as compared with a net revenue deficit of $255,307 in March, 1933, an increase of $1,854,266.

For the first quarter of 1934, gross operating revenues showed an increase of $6,788,415 over those of the similar period of 1933, reaching a total of $37,366,442. Operating expenses were $37,301,439 as compared with $34,601,270 in the similar period of last year. Net operating revenue was $65,003 as compared with a net revenue deficit of $4,023,243, an improvement of $4,088,246.

Gross revenues of the Canadian Pacific in March totaled $9,946,321, an increase of $1,146,165. The increase in expenses was $504,731, and the month's net operating revenues of $1,518,929 showed a gain of $641,433 over the $877,495 reported for March a year ago. This year's March net was the largest for that month since 1931.

In the first quarter gross revenues rose from $23,572,705, a year ago, to $27,487,171. Expenses increased by $1,985,506, to $24,260,732 leaving the quarter's operating net at $3,226,439, as compared with $1,297,479 a year ago, an increase of $1,928,960. A tabulation of these earnings follows:

	—MARCH—		
	1934	1933	Inc.
	$	$	$
Gross	9,946,321	8,800,156	1,146,165
Exp.	8,427,391	7,922,660	504,731
Net	1,518,929	877,495	641,433
	—THREE MONTHS—		
	1934	1933	Inc.
	$	$	$
Gross	27,487,171	23,572,705	3,914,166
Exp.	24,260,732	22,275,225	1,985,506
Net	3,226,439	1,297,479	1,928,960

Extension of R. F. C. Loans Provided in Senate Bill

A new leverage to assist the federal government in imposing its ideas as to "reforms" in railroad financing upon such carriers as may have difficulty in meeting their loans to the Reconstruction Finance Corporation is provided in a bill passed by the Senate on April 25 to authorize the extension of such loans for a period not exceeding five years from February 1, 1935. The bill contains a proviso that in respect of loans or advances made to railroads, receivers, and trustees the corporation may require as a condition of making any such loan or advance for a period longer than three years "that such arrangements be made for the reduction or amortization of the indebtedness of the railroad or railway, either in whole or in part, as may be approved by the corporation after the prior approval of the Interstate Commerce Commission."

It is also provided that the corporation may at any time or from time to time extend, or consent to the extension of, the time of payment of any loan or advance made by it through renewal, substitution of new obligations, or otherwise, but the time for such payment shall not be extended beyond five years from February 1, 1935. Provided, that the time of payment of loans or advances to railroads, receivers or trustees shall not be so extended except with the prior approval of the Interstate Commerce Commission and with the prior certification of the commission "that the railroad or railway is not in need of financial reorganization in the public interest." In connection with a reorganization or receivership it is provided that the corporation may with the prior approval of the Interstate Commerce Commission, adjust or compromise its claim by accepting, in exchange for securities held, new securities which may have such terms as to interest, maturity, and otherwise as may be approved by the corporation, or part cash and part new securities so approved, provided that any such adjustment or compromise shall not be made on less favorable terms than those provided in the reorganization for holders of claims of the same class and rank as the claims of the corporation.

K. C. S. Wage and Rules Controversy Settled

A new wage agreement which averted a threatened strike was signed by the Kansas City Southern and its four train and engine service brotherhoods on April 30, to be effective for one year beginning May 1. The agreement affects enginemen, firemen, conductors, brakemen and yardmen and represents a compromise between the railroad's proposal made a year ago to establish a basic pay schedule unrelated to the distance run and the old rules under which employees have worked. Wages and hours will be unchanged under the new contract but some of the 250 rules formerly in effect which the company opposed as antiquated and cumbersome have been altered.

According to C. E. Johnston, president, "the employees have made very substantial concessions in the restrictive rules and penalties which, as the President's Emergency Board found, interfere with efficient and economical operation and proper service to the railroad's patrons. We are especially gratified that our employees have recognized in these agreements the necessity and wisdom of making rules which will meet the practical requirements of railroad operation and competition and we believe it is a good omen for the future." Five separate agreements were signed on April 30; one with the Order of Railway Conductors covering rates of pay, rules and working conditions for conductors; one with the Brotherhood of Locomotive Engineers for enginemen; one with the Brotherhood of Locomotive Firemen and Enginemen for firemen, and two with the Brotherhood of Railroad Trainmen for trainmen and yardmen superseding the old schedules. In general these agreements provide for more flexible operation and considerable modification of the restrictive rules which have been objected to by the railway in the past.

Among other modifications the four- and eight-hour penalties in the terminal switching rules have been eliminated and this work is now to be paid for on an actual time basis. Crews of local and dodger runs 75 miles or less in length will not receive pay for terminal switching in addition to the road trip. Combination crews performing yard and road service may now be started out of any point except Kansas City and Shreveport whereas this privilege was formerly limited to five specified stations. The requirement that three brakemen be assigned to all main line locals has been eliminated. Conversion and aggregating rules were simplified and liberalized and other minor changes made. A payroll reduction agreement conforming to that adopted by the railroads and labor organizations in Washington on April 26 was also signed by the K. C. S. employees.

Durable Goods Committee Submits Report

(*Continued from page 665*)

uniformity of wages and hourly rates in competitive industries. One factor, it says, is the extent to which the competitive industries are mechanized but adds that "as opportunity offers, and where desired by code authorities of industries concerned, minimum wage rates in competitive industries should be adjusted to obtain such a degree of uniformity as may be fair to the competitive industries." As to sectional differentials (point 4) the committee finds that "The propriety of North-South differentials varies with different industries." Here again it would prescribe no rigid formula but would consider each individual case on its merits.

In discussing point 5—further reductions in hours per week and further increases in hourly wages—the report presents an array of wage, employment, operating and financial data bearing on the durable goods industries. It finds that "any increase in wages or any increase in the cost of material must be passed on to the buyer of the product" and continues to say:

"The committee believes that any further general increase in wages at this time would retard and not encourage recovery. It is the committee's firm belief that in the Durable Goods Industries, where purchases can be postponed indefinitely, further increases in costs and resultant increased selling prices would tend to reduce the volume of sales and employment.

"On the other hand, the committee recognizes that there are individual cases where adjustments have not been made in keeping with industrial adjustments generally, and where special conditions make wage increases and reduction in maximum hours possible. The committee recommends in

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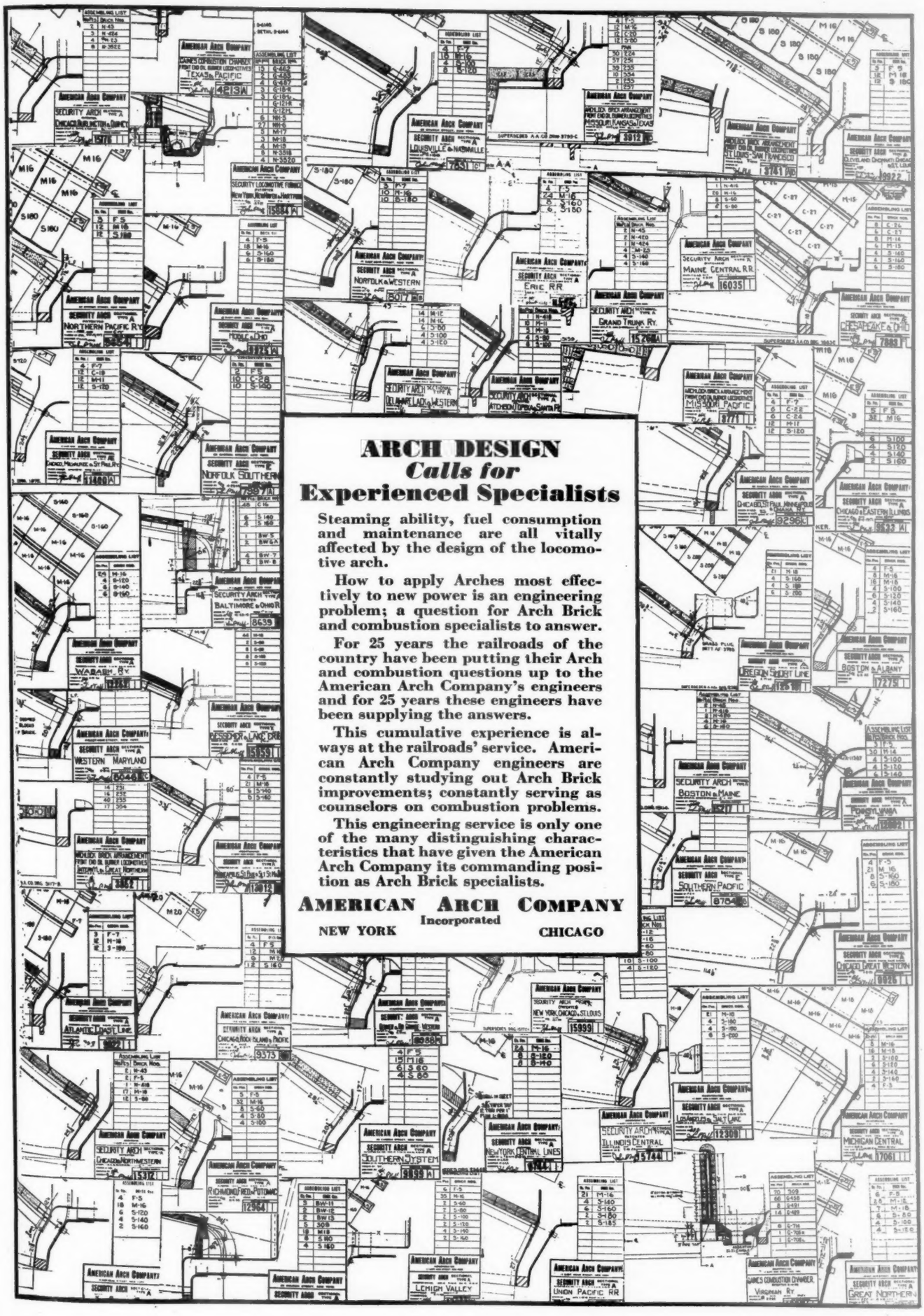
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such cases that such changes be made. *In the opinion of the Committee no attempt should be made to effect blanket increases in wages or reduction in code hours by executive order.*"

In connection with points 7 and 12 dealing with compliance with codes and labor disputes the report urges "that emphasis be placed on and encouragement be given to plans of plant employer-employee contact." Considering compliance with reference to fair trade practices and with reference to wage and hour provisions the committee recommends that code authorities shall provide the necessary machinery to effect such compliance and that each code authority shall be charged with the responsibility of doing so and shall be clothed with sufficient power to make investigation to this end if not so charged and clothed by its code.

Brief discussions of the remaining points 8, 9, 10 and 11 close the report. In connection with these it is recommended respectively that expenses of administration should be prorated among code members and that failure to pay be made a violation of the code; that careful definitions of the industries involved will eliminate most conflicts between codes and that remaining differences be composed in conferences between code authorities involved with the approval of N. R. A.; that the committee, while approving adequate labor and consumer representation in an advisory capacity on code authorities, does not approve direct representation for these interests; and that the great diversity of conditions in the codified industries prevents uniformity of governmental representation on code authorities.

The report was signed by all members of the committee, but Robert W. Irwin, Chairman of the Code Authority for the Furniture Manufacturers Industry, qualified his approval with a dissent from the committee's conclusions with respect to points 1, 2 and 6. Mr. Irwin recommended the elimination of all price fixing plans and a reinstatement of the anti-trust laws.

Would Analyze Merits of Waterway Projects

(*Continued from page 663*)

but they did it by departures from the long-and-short haul rule and the granting of much lower rates than they charged elsewhere. This gave the cities and towns on the waterways a favored position with respect to railroad rates. So long as this favored position continued, they were indifferent to the absence of competing water craft; but this very absence led the commission and the railroads to revise the rates, thus eliminating the favored position. It is the desire to regain this position of advantage with respect to railroad rates which I suspect creates a good deal of the pressure for new waterway construction.

"I am undertaking to look into this question to the best of my ability, so far as some of the existing waterways are concerned, and I expect to report upon it in the not too distant future. It is far from a simple question, and for this reason I am anxious that the inquiry should be careful and deliberate and free from any possible prejudice. It may be that I shall find that all of the necessary facts are not presently available. I feel the more certain that this is a subject which merits careful attention, because of the fact that there is so much water transportation to which no such doubts attach and which deserves the utmost protection and encouragement. It is a case of winnowing the chaff from the wheat, and I have no doubt that you are as strong for that as I am.

"There are some who believe that the thing to do, in these circumstances, is to let down the bars for the railroads, have a free-for-all fight, and let the best man win. History and experience, in my judgment, give a complete answer to any such thought. The result could only be many bankrupt and unsafe properties, bad labor conditions, flagrant favoritism in rates with the benefit going to the big shipper and the big community, and an uncertainty and instability which would be demoralizing to industry in general.

"In an open fight without let or hindrance, the advantage lies with the form of transportation which has the largest reserves of traffic upon which other transportation agencies cannot encroach, and with all of the competition by which they are beset the railroads still have the edge in that respect. In that connection I suggest that you who have the interests of water transportation at heart may well keep an eye on the attempts which are being made to wipe out the so-called long-and-short-haul clause in the Interstate Commerce Act. I venture this suggestion, lest there be a repetition of our early experience with destructive competition.

"I have had no difficulty therefore, in reaching the conclusion, and have so reported, that the public interest demands more federal regulation rather than less; that it should be an even-handed regulation of all important forms of transportation; and that it should be concentrated in the hands of a single body, the Interstate Commerce Commission.

"The essential thing is to find, as near as may be, the place which each of the forms of transportation should occupy in the national transportation system, and give it opportunity to function freely in that place without uneconomic duplication or destructive competition from other forms of transportation.

"I realize full well the difficulties in regulation. Owing to the presence of private and contract carriers, these difficulties are probably greater in the field of water transportation than in the case of the railroads, and they are most numerous and formidable in the field of highway transportation. But I see no sound reason for failing to set our hands to the plough because some rocks are likely to be encountered.

"The inescapable fact is that transportation in this country is rapidly becoming demoralized, and that no good will come out of this situation until it is corrected. The federal government must take the driver's seat and bring about some degree of order and co-ordination. It must get on top of this problem and not out of its way. From the evidence which my staff has gathred I feel sure that this opinion is growing all over the country, and I believe it is now the dominant opinion. It is by no means confined to the railroads, although of course they entertain it. I find it among business men and shippers; it is strongly held by the state authorities; and it is steadily gaining ground among the other transportation agencies. If a census were taken today of water carriers, I am confident that it would be found that a very substantial majority of those engaged in common carrier operations hold to this view; and the same may be said of the better organized and most competent highway operators.

"Each form of transportation is entitled to its place in the sun, and should have it. Any sound scheme of regulation must not only recognize but be based upon that fact. Some of the surplus must, of course, be trimmed down, for there are transportation facilities among the railroads and elsewhere which no longer serve a real economic need. The task is to get rid of this surplus without pushing the doctrine of the survival of the fittest to a point which will endanger the whole structure.

"In view of the surplus in transportation facilities which now exists, it is clear that we should be careful about adding still more. Of course the mere fact that there is such a surplus does not prove that no new facilities should be provided, for that would stop progress. If the new is distinctly better than the old, the country is entitled to the benefit of the improvement, no matter what the effect may be upon the old. All that I suggest is that the present oversupply of transportation facilities makes it wise to analyze with particular care all projects for new facilities, to make sure that they are economically sound.

"The law now covers this matter fully, so far as railroads are concerned, for it requires a certificate of public convenience and necessity from the Commission prior to the building of any new line. Experience has shown the need for such a requirement, and more recent events have indicated that the Commission has been, perhaps, somewhat more liberal than it should have been in the administration of this provision of the law. As a member of the commission I can say this with good grace, and I also realize the difficulties, for public sentiment is always strong for new construction, regardless of its real merits. If the regulatory laws which I have recommended are enacted, there will be similar provisions covering new water lines and new motor carrier lines."

Meetings & Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings:

AIR BRAKE ASSOCIATION.—T. L. Burton, Room 2205, 150 Broadway, New York, N. Y.

ALLIED RAILWAY SUPPLY ASSOCIATION.—F. W. Venton, Crane Company, 836 S. Michigan Ave., Chicago, Ill. To meet with Air Brake Association, Car Department Officers' Association, International Railroad Master Blacksmiths' Association, International Railway Fuel Association, International Railway General Foremen's Association, Master Boiler Makers' Association and the Traveling Engineers' Association.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—W. R. Curtis, F. T. R., M. & O. R. R., Chicago, Ill.

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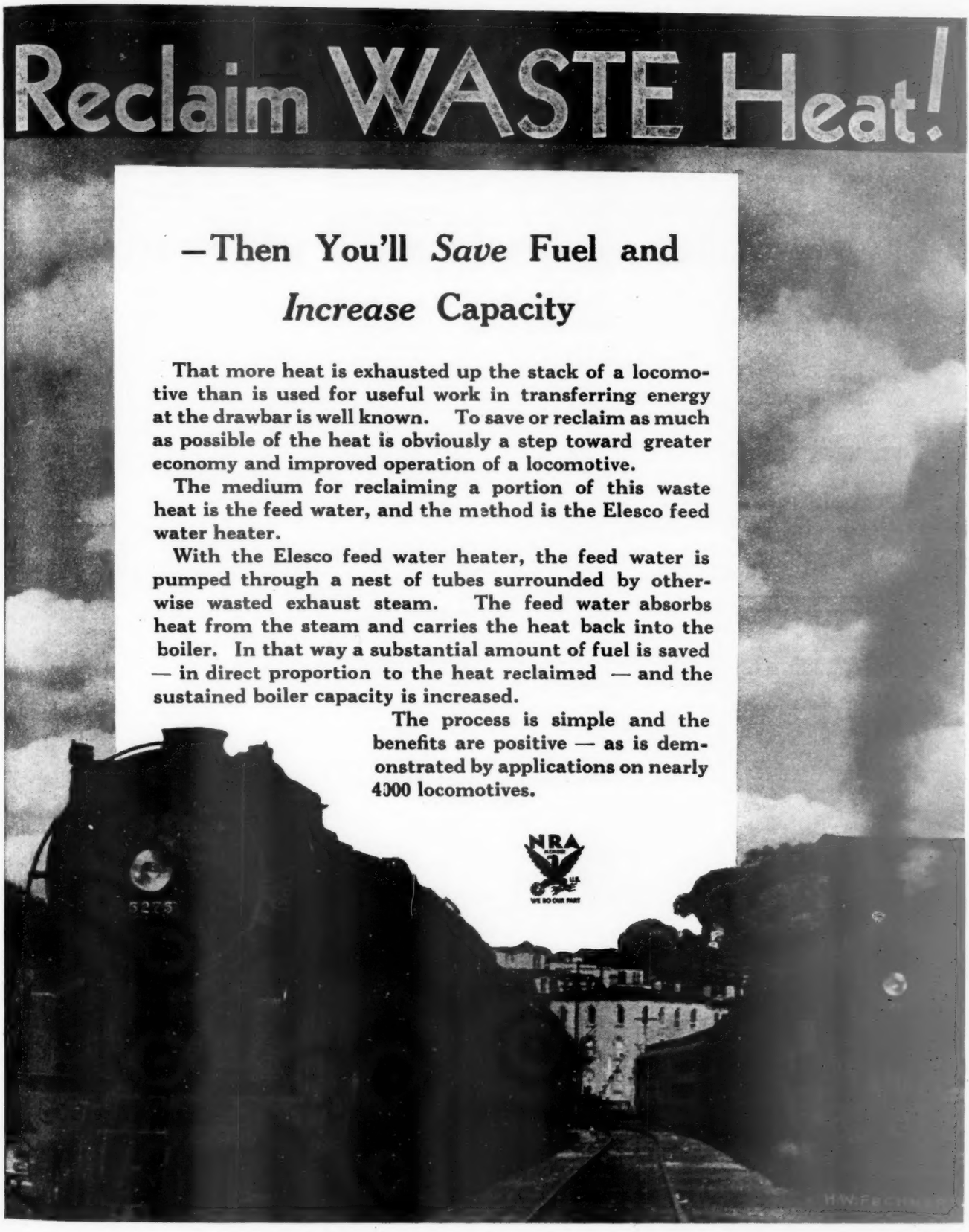
That more heat is exhausted up the stack of a locomotive than is used for useful work in transferring energy at the drawbar is well known. To save or reclaim as much as possible of the heat is obviously a step toward greater economy and improved operation of a locomotive.

The medium for reclaiming a portion of this waste heat is the feed water, and the method is the Elesco feed water heater.

With the Elesco feed water heater, the feed water is pumped through a nest of tubes surrounded by otherwise wasted exhaust steam. The feed water absorbs heat from the steam and carries the heat back into the boiler. In that way a substantial amount of fuel is saved — in direct proportion to the heat reclaimed — and the sustained boiler capacity is increased.

The process is simple and the benefits are positive — as is demonstrated by applications on nearly 4000 locomotives.



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AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 S. Michigan Ave., Chicago, Ill.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York, N. Y.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—F. O. Whiteman, Union Station, St. Louis, Mo. Annual meeting, June 19-21, 1934, Hotel Sherman, Chicago, Ill.

AMERICAN ASSOCIATION OF RAILWAY ADVERTISING AGENTS.—E. A. Abbott, Poole Bros., Inc., 85 W. Harrison St., Chicago, Ill.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, C. I. & L. Ry., 836 Federal St., Chicago, Ill.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—(See American Transit Association.)

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y.

Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York, N. Y.

Freight Station Section.—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill. Annual meeting, June 26-28, 1934, Hotel Knickerbocker, Chicago, Ill.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York, N. Y. Annual meeting, June 25-26, 1934, Hotel Washington, Washington, D. C.

Protective Section.—J. C. Caviston, 30 Vesey St., New York, N. Y. Annual meeting, May 22-23, 1934, Hotel Washington, Washington, D. C.

Safety Section.—J. C. Caviston, 30 Vesey St., New York, N. Y. Annual meeting, October 2-4, 1934, Hotel Cleveland, Cleveland, Ohio.

Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York, N. Y. Annual meeting, June 12-14, 1934, Hotel Stevens, Chicago, Ill.

Division II.—Transportation.—G. W. Covert, 59 E. Van Buren St., Chicago, Ill.

Division III.—Traffic.—J. Gottschalk, 143 Liberty St., New York, N. Y.

Division IV.—Engineering.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 12-14, 1935, Palmer House, Chicago, Ill.

Construction and Maintenance Section.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 12-14, 1935, Palmer House, Chicago, Ill.

Electrical Section.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill.

Signal Section.—R. H. C. Balliet, 30 Vesey St., New York, N. Y.

Division V.—Mechanical.—V. R. Hawthorne, 59 E. Van Buren St., Chicago, Ill.

Equipment Painting Section.—V. R. Hawthorne, 59 E. Van Buren St., Chicago, Ill.

Division VI.—Purchases and Stores.—W. J. Farrell, 30 Vesey St., New York, N. Y.

Division VII.—Freight Claims.—Lewis Pilcher, 59 E. Van Buren St., Chicago, Ill. Annual meeting, May 22-24, 1934, Hotel Commodore, New York, N. Y.

Division VIII.—Motor Transport.—George M. Campbell, 30 Vesey St., New York, N. Y.

Car Service Division.—C. A. Buch, 17th and H Sts., N. W., Washington, D. C.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago, Ill.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—J. A. Senter, Ind. Agt., N. C. & St. L. Ry., Nashville, Tenn. Annual meeting, June 20-22, 1934, Baltimore Hotel, Kansas City, Mo.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in co-operation with the American Railway Association, Division IV.—E. H. Fritch, 59 E. Van Buren St., Chicago, Ill. Annual meeting, March 12-14, 1935, Palmer House, Chicago, Ill.

AMERICAN RAILWAY MAGAZINE EDITORS' ASSOCIATION.—J. L. James, L. & N. Employes' Magazine, Louisville, Ky. Mid-year meeting, May 3-4, 1934, Netherland Plaza Hotel, Cincinnati, Ohio.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C., M., St. P. & P. R. R., 11402 Calumet Ave., Chicago, Ill. Exhibit by Tool Foremen Suppliers' Association.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—R. E. Schindler, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York, N. Y. Spring meeting, June 25-28, 1934, Cosmopolitan Hotel, Denver, Colo. Railroad Division.—Marion B. Richardson, Ahrens & Richardson, 30 Church St., New York, N. Y.

AMERICAN TRANSIT ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York, N. Y. Annual meeting, September 24-28, 1934, Cleveland Public Auditorium, Cleveland, Ohio.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 1427 Eye St., N. W., Washington, D. C. Annual meeting, 1935, New York, N. Y.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Annual meeting, May 16-18, 1934, Hotel Cleveland, Cleveland, Ohio.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., 1519 Daily News Building, 400 W. Madison St., Chicago, Ill. Annual meeting, October, 1934, Chicago, Ill. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, Transportation Building, Washington, D. C.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—J. W. Shoop, The Lehon Company, Oakley Ave., 44th and 45th Sts., Chicago, Ill. Meets with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 2276 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, second Monday of each month, except June, July and August, Windsor Hotel, Montreal, Que.

CAR DEPARTMENT OFFICERS' ASSOCIATION.—A. S. Sternberg, M. C. B. Belt Ry. of Chicago, 7926 S. Morgan St., Chicago, Ill.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—G. K. Oliver, 2514 W. 55th St., Chicago, Ill. Regular meetings, second Monday of each month, except June, July and August, La Salle Hotel, Chicago, Ill.

CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.—J. W. Krause, Room 299, 610 S. Main St., Los Angeles, Cal. Club not active at present.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—J. F. Brady, Main and Barton Sts., St. Louis, Mo. Operation suspended indefinitely.

CENTRAL RAILWAY CLUB OF BUFFALO.—M. D. Reed, 1817 Hotel Statler, McKinley Square, Buffalo, N. Y. Regular meetings, second Thursday of each month, except June, July and August, Hotel Statler, Buffalo, N. Y.

CINCINNATI RAILWAY CLUB.—D. R. Boyd, 2920 Utopia Place, Hyde Park, Cincinnati, Ohio. Operation suspended indefinitely.

CLEVELAND RAILWAY CLUB.—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings temporarily suspended.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—T. D. Smith, 1660 Old Colony Building, Chicago, Ill.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabasha St., Winona, Minn.

MASTER BOILER MAKERS' ASSOCIATION.—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 270 Madison Ave., New York, N. Y. Annual Meeting, November 1[illegible] 1934, Washington, D. C.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, Suite 322, 910 S. Michigan Ave., Chicago, Ill.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section (See Safety Section, American Railway Association).

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, second Tuesday of each month, except June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—D. W. Pye, 30 Church St., New York, N. Y. Regular meetings, third Friday of each month, except June, July and August, 29 W. 39th St., New York, N. Y.

PACIFIC RAILWAY CLUB.—W. S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings, second Thursday of each month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, Transportation Building, Washington, D. C. Annual meeting, June 26-29, 1934, Greenbrier Hotel, White Sulphur Springs, W. Va.

RAILWAY BUSINESS ASSOCIATION.—P. H. Middleton (Treas. and Asst. Sec.), First National Bank Building, Chicago, Ill.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 1841 Oliver Building, Pittsburgh, Pa. Regular meetings, fourth Thursday of each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—Edward Wray, 9 S. Clinton St., Chicago, Ill. Meets with Association of Railway Electrical Engineers.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md. Annual meeting, October 16-18, 1934.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Building, Pittsburgh, Pa. Meets with Mechanical Division, Purchases and Stores Division and Motor Transport Division, American Railway Association.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with Telegraph and Telephone Section of A. R. A. Division I.

RAILWAY TIE ASSOCIATION.—A. S. Fathman, 1252 Syndicate Trust Building, St. Louis, Mo. Annual meeting, May 16-17, 1934, Cleveland Hotel, Cleveland, Ohio.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, 1428 Broad Street Station Building, Philadelphia, Pa.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Annual meeting, September 18-20, 1934, Hotel Stevens, Chicago, Ill.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Drawer 24, M. P. O., St. Louis, Mo. Meetings temporarily suspended.

SIGNAL APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Company, 30 Church St., New York, N. Y. Meets with A. R. A. Signal Section.

SOCIETY OF OFFICERS, EASTERN ASSOCIATIONS OF RAILROAD VETERANS.—M. W. Jones, Baltimore & Ohio, Mt. Royal Station, Baltimore, Md. Annual meeting, October 6-7, 1934, Buffalo, N. Y.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, 4 Hunter St., S. E., Atlanta, Ga. Regular meetings, third Thursday in January, March, May, July, September and November, Ansley Hotel, Atlanta, Ga.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & C. R. R., Atlanta, Ga.

SUPPLY MEN'S ASSOCIATION.—E. H. Hancock, Treasurer, Louisville Varnish Co., Louisville, Ky. Meets with A. R. A. Division V, Equipment Painting Section.

TOOL FOREMEN SUPPLIERS' ASSOCIATION.—E. E. Caswell, Union Twist Drill Co., 11 S. Clinton St., Chicago, Ill. Meets with American Railway Tool Foremen's Association.

TORONTO RAILWAY CLUB.—N. A. Walford, P. O. Box 8, Terminal "A," Toronto, Ont. Regular meetings, first Friday of each month, except June, July and August, Royal York Hotel, Toronto, Ont.

TRACK SUPPLY ASSOCIATION.—L. C. Ryan, Oxweld Railroad Service Co., Carbon & Carbide Building, Chicago, Ill. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 E. 98th St., Cleveland, Ohio.

WESTERN RAILWAY CLUB.—C. L. Emerson, C., M., St. P. & P., Chicago, Ill. Regular meetings, third Monday of each month, except June, July, August and September, Hotel Sherman, Chicago, Ill.

The Effect of Wage Rates on Employment

The 10 per cent deduction, effective between February 1, 1933, and July 1, 1934, has left rail labor costs upon a plateau as compared with the surrounding wage and price levels, an inevitable consequence of which condition has been that railroad charges to their patrons, particularly their freight rates, had likewise to remain upon a relative plateau of competitive disadvantage. . . . . .

In 1929 the average number of railroad employes was 1,660,000; in 1933 it was 971,000. The shrinkage was due chiefly to the traffic and earnings slump, but keeping unit costs of labor up has played its part in railroad unemployment. That is more than indicated by the fact that the first result of traffic and earnings gain in recent months has been to expand employment and payrolls, even before bond interest defaults has ceased to multiply.

Behind the rail settlement is a triumph of the theory that the way to expand the use of labor is to keep it dear and make it dearer, regardless of the means available to pay for it. That is what the country is expected to approve. Quite possibly it will. But some hundreds of thousands of unemployed railroad men will feel like signing a minority report.

From the Wall Street Journal.

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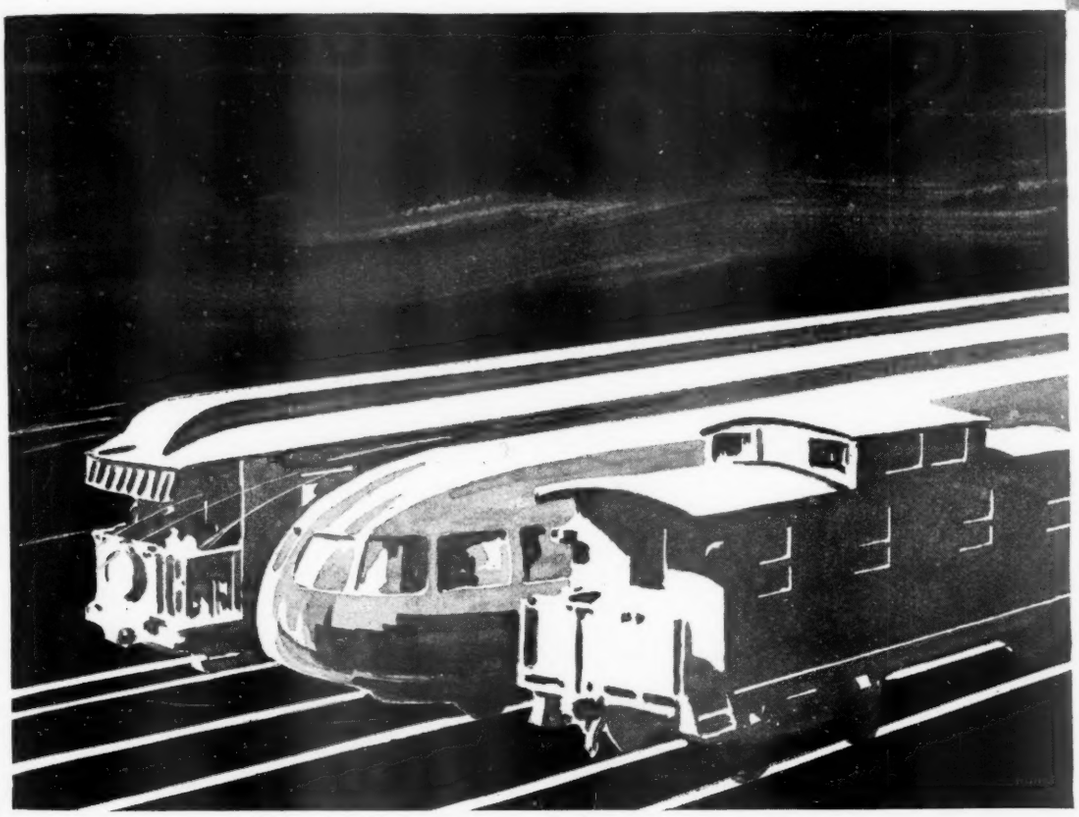
But . . .

regarding the "head end"



AMERICAN LOCOMOTIVE COMPANY

No matter what type of power unit is required, Alco designs are ready.

And furthermore, built into the Alco designs will be 100 years experience

with building for vitally important necessary railway low maintenance.

50 CHURCH STREET · NEW YORK · N.Y.

Equipment and Supplies

P.W.A. Loans to Railroads

Public Works Administrator Harold L. Ickes announced on May 1 that he had signed two more contracts for work-creating loans to railroad companies. The total of the two loans is $640,000 and brings to $178,031,000 the amount of railroad loan contracts signed. P. W. A. has allotted $199,607,800 for loans to railroads.

One of the contracts covers a loan of $600,000 to the Lehigh Valley to be used to purchase 5 new steam locomotives. Building these engines will create 112,000 man-hours of direct employment in the manufacturing plant, it is estimated. The other contract covers a loan of $36,000 to the Midland Continental, a short line in North Dakota, for the purchase of a new Diesel-electric locomotive. This locomotive will cost $52,000 and the railroad company will supply the balance required above the $36,000 loaned by P. W. A.

Secretary Ickes has announced his intention of inquiring into the circumstances of the contract given by the New York Central to the Wierton Steel Company for 2,203 kegs of spikes and 132,700 tie plates, amounting to $47,402 of the $2,500,000 loan made by the P. W. A. to the railroad. The steel company has been accused by the National Labor Board of failing to comply with labor provisions of the steel code but the case is pending in court.

LOCOMOTIVES

STEAM AND DIESEL-ELECTRIC STREAMLINE TRAINS FOR B. & O.—See this story on page 663 of this issue.

THE CHILEAN STATE RAILWAYS have ordered 10 locomotives of the 2-8-2 type from the Baldwin Locomotive Works.

THE LEHIGH VALLEY has ordered five locomotives of the 4-8-4 type from the Baldwin Locomotive Works. Inquiry for this equipment was reported in the *Railway Age* of February 24.

THE BOSTON & MAINE is now inquiring for one Diesel switching locomotive. This is in addition to its inquiry for five locomotives of the 4-6-2 type and five locomotives of the 4-8-2 type reported in the *Railway Age* of April 14.

FREIGHT CARS

THE PITTSBURG, SHAWMUT & NORTHERN is inquiring for 150 steel hopper cars of 50 tons' capacity.

THE ALASKA RAILROAD has ordered ten 25-yd. dual-side pivot drop door air-dump cars from the Western Wheeled Scraper Company.

THE UNITED STATES NAVY DEPARTMENT, reported in the *Railway Age* of March 10 as inquiring for three flat cars and two box cars, all of 50 tons' capacity, has ordered this equipment from the Haffner-Thrall Car Company.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has ordered two 30-yd. dual-side pivot drop door air-dump cars from the Western Wheeled Scraper Company.

PASSENGER CARS

THE BOSTON & MAINE is now inquiring for three Diesel rail motor cars and 21 suburban coaches.

MISCELLANEOUS

THE LEHIGH VALLEY has placed an order with the Timken Roller Bearing Company, Canton, Ohio, for roller bearings to be used under engine trucks of five locomotives of the 4-8-4 type; two of these, however, will be equipped throughout with roller bearings on all axles including driving axles. The locomotives will be built by the Baldwin Locomotive Works.

Air-Conditioning on P. R. R.

The Pennsylvania will operate during the coming summer season the largest fleet of air-conditioned cars in the world; more than 100 air-conditioned express trains will operate daily on its important through travel routes, according to an announcement made by D. M. Sheaffer, chief of passenger transportation.

This road is expediting work on an extensive air-conditioning program which will place on its rails this season approximately 750 artificially-cooled cars, more than were in service on all the American railroads last summer. It is now air-conditioning 109 passenger cars at its Altoona, Pa., shops, including 30 diners cooled by a newly developed and improved mechanical system. A total of 88 dining cars will be artificially cooled. Also being equipped for temperature control are 56 passenger coaches and 23 combined passenger and baggage cars.

The Pullman Company is air-conditioning 300 sleeping cars and 25 parlor cars for Pennsylvania service. These will be in addition to 81 artificially cooled Pullmans operated by the road last year.

In 1933 the Pennsylvania had 241 air-conditioned cars in use; this number will be more than tripled for the 1934 season

Correction

Air-conditioning equipment for 50 deluxe light-weight streamlined coaches, now being built for the New York, New Haven & Hartford, was ordered from the General Electric Company. The compressors and electrical apparatus for this air-conditioning equipment will be furnished by General Electric Company. The evaporator coils and fans will be furnished by B. F. Sturtevant Company, Hyde Park, Mass. These equipments are the same as those reported in the *Railway Age* of April 28, page 632. The cars are to be built by the Pullman-Bradley Car Corporation, Worcester, Mass., as reported in the *Railway Age* of March 17 and April 7.

Supply Trade

The Geo. M. Coale Company has moved its office from 2100 North Natchez avenue to 310 South Michigan avenue, Chicago.

E. W. Backus, western representative of **Standard Equipment, Inc.,** New York, with headquarters at Chicago, has been appointed chief engineer in addition to his present duties.

William H. White, until recently associated with the Graham-White Sander Corporation, Roanoke, Va., has been appointed southeastern representative of the **T-Z Railway Equipment Company** and the **Morris B. Brewster Company,** Chicago, with headquarters at Roanoke.

E. A. Turner, for the past six years patent solicitor of **The Standard Stoker Company, Inc.,** has been appointed also assistant to the president with headquarters at New York. Prior to his association with The Standard Stoker Company, Mr. Turner was development and patent engineer of the Locomotive Stoker Company.

Albert S. Low has been appointed vice-president and chief engineer of the **Austin Company,** Cleveland, Ohio, succeeding as chief engineer **Harry E. Stitt,** who will continue his association with the company as consulting engineer. **Peter C. McCabe,** who has served for the past 14 years in various capacities with the Austin Company, succeeds Mr. Low as acting district manager in charge of the west central district, with headquarters at Chicago. Mr. Low is a graduate of the Sheffield Scientific School, Yale University, and has been with the Austin Company for 21 years, during the past 12 years of which he has been in charge of the central district as regional vice-president, with headquarters at Chicago.

Locomotive Industry's Code Approved

National Administrator Hugh S. Johnson on April 30 approved the code of fair competition for the locomotive manufacturing industry, a subdivision of the approved machinery and allied products code. This industry, which suffered a 95.8 per cent reduction in production, a 72.6 reduction in employment and a 90 per cent reduction in payrolls between 1929 and 1933, expects a marked increase for 1934 due to the purchase of locomotives by railroads out of funds loaned by the federal government.

It is estimated that the code will increase factory employment about 4 per cent over June, 1934, and 9 per cent over what is generally considered normalcy in the industry, and that factory payrolls will increase 1.4 per cent over June, 1933, and office payrolls about 6.4 per cent.

Wage, hour, and labor provisions of the basic code are accepted, and a temporary code authority to function for not more than 60 days is set up to provide for the election of a permanent body consisting of not more than 3 members exclusive of administration members to serve without expense to the industry. Provision is made for the industry to withdraw from the

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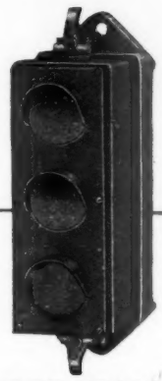

"On Time; *but* - - -

10 GOOD REASONS—

—Why "Union" Coded Continuous Cab Signals are effective in improving railway service:

1. **Increase safety of train operation.**
2. **Expedite traffic.**
3. Signal indications are continuously visible irrespective of fog, other weather conditions, curves or physical obstructions.
4. **Indicate *instantly* any changed condition on track ahead.**
5. **Permit trains to increase speed *at any point* where a less restrictive indication is received.**
6. **Determine location of broken rails.**
7. **Supplemented by audible indication.**
8. **Cab Signal duplicated on fireman's side.**
9. **Prevent misreading of wayside signals.**
10. **Effect operating economies.**

—if it had not been for those "Union" Cab Signals, we sure would have been some late. Why, I couldn't see five feet in front of me in that fog."

Irrespective of fog, sleet, storm or other weather conditions, curves or physical obstructions, signal indications are *continuously* visible on locomotives equipped with "Union" Continuous Cab Signals. They ride in the cab where *nothing* can obstruct their view.

This is another of the ten reasons why they should be installed on your locomotives.

1881 **Union Switch & Signal Co.** 1934

SWISSVALE, PA.

NEW YORK MONTREAL CHICAGO ST. LOUIS SAN FRANCISCO

basic code upon a two-thirds vote of all members of the industry.

George H. Bucher, who has been elected president retaining also the duties of general manager of the **Westinghouse Electric International Company,** will have his headquarters as formerly at New York. After his graduation from Pratt Institute, Brooklyn, N. Y., in both steam

George H. Bucher

and machine design and in electrical engineering, Mr. Bucher joined the Westinghouse Electric & Manufacturing Company at East Pittsburgh, Pa., as a graduate student and since September, 1909, has been connected with the Westinghouse organization. In 1911, he was transferred to the export department at New York, and in 1920 was appointed assistant to the general manager of the Westinghouse Electric International Company. The following year he was promoted to assistant general manager and in 1932, was appointed vice-president and general manager of the same company.

R. B. Mildon, who has been elected vice-president of the **Westinghouse Electric & Manufacturing Company,** with headquarters at South Philadelphia, Pa., will have charge of the operations of mar-

R. B. Mildon

keting, engineering, manufacturing and service in connection with the products of the South Philadelphia works. Mr. Mildon was graduated from the civil engineering school of Cornell University in 1900, and shortly thereafter was employed by the Union Pacific and the Colorado Fuel & Iron Company in an engineering capacity. In 1906, he was appointed chief engineer of the Duquesne Mining Company, and three years later became associated with the Westinghouse company in charge of the gas producer department of its machine works at East Pittsburgh, Pa. In 1912, he was transferred to the Westinghouse Air Spring Company and in 1916, re-entered the employ of the Westinghouse Electric & Manufacturing Company as assistant to vice-president; recently he has been in charge of the stoker department.

OBITUARY

I. H. Bowen, railroad department representative of the Dearborn Chemical Company, at Denver, Colo., died recently.

George P. Nichols, who retired as an active partner in the firm of George P. Nichols & Brother, Chicago, in 1926, died in a hospital at Milwaukee, Wis., on May 1.

Charles E. Hale, for many years connected with the sales organization of the Baldwin Locomotive Works, died at Philadelphia, Pa., on April 16. Mr. Hale was born at Elkhart, Ill., on April 21, 1879.

Charles E. Hale

Later he went to Chicago where he graduated from the grade schools. He then entered the Michigan Military Academy, from which he was graduated in 1899. In 1916, he entered the railway supply business with the Duff Manufacturing Company, and in 1919 became connected with the Baldwin Locomotive Works. From 1923 to 1929, he was manager of the Baldwin office at Pittsburgh, Pa., and was later connected with its office at Chicago. In 1932 Mr. Hale returned to the home office in Philadelphia where he was in active service until a few weeks before his death.

Jesse M. Watkins, vice-president of the Mather Stock Car Company, Chicago, died in Evanston, Ill., on April 28 following a heart attack. He was born at Fairfield, Herkimer county, N. Y., on October 10, 1868, and graduated from Amherst college in 1889. In the same year he entered the employ of the Mather Stock Car Company and after holding various positions, was elected vice-president in 1896, which position he was holding at the time of his death.

Financial

ATLANTIC COAST LINE.—*Annual Report.*—The 1933 annual report of this road shows net deficit, after interest and other charges, of $2,385,788, as compared with a net deficit of $6,685,229 in 1932, a decrease of $4,299,441. Selected items from the income statement follow:

	1933	1932	Increase or Decrease
RAILWAY OPERATING REVENUES	$37,908,943	$37,268,564	+$640,379
Maintenance of way	4,544,777	5,809,113	−1,264,336
Maintenance of equipment	7,749,821	8,205,504	−455,683
Transportation	13,764,828	14,795,163	−1,030,335
TOTAL OPERATING EXPENSES	29,127,630	32,270,877	−3,143,247
Operating ratio	76.84	86.59	−9.75
NET REVENUE FROM OPERATIONS	8,781,313	4,997,687	+3,783,626
Railway tax accruals	3,617,000	3,975,000	−358,000
Railway operating income	5,152,049	1,009,088	+4,142,961
Equipment rents—Net Dr.	876,843	944,399	−67,556
Joint facility rents—Net Cr.	24,606	43,510	−18,904
Non-operating income	1,462,363	1,736,205	−273,842
GROSS INCOME	6,614,412	2,745,293	+3,869,119
Rent for leased roads	89,465	82,576	+6,889
Interest on funded debt	*6,282,787	*6,322,207	−39,420
TOTAL DEDUCTIONS FROM GROSS INCOME	9,000,199	9,430,523	−430,324
NET DEFICIT	$2,385,788	$6,685,229	−$4,299,441

* Does not include interest on company's bonds held in the treasury or pledged.

CHESAPEAKE & OHIO.—*Abandonment.*—Examiner R. R. Molster of the Interstate Commerce Commission has recommended in a proposed report that the commission withhold its approval of this company's application for authority to abandon its Carter branch, from Garrison, Ky., to Carter, 19.74 mi., stating that the applicant is well able to afford the territory an opportunity to demonstrate its need for the railroad under improving economic conditions and that operation of the line, even with less frequent service, if necessary, would be preferable to complete isolation of the territory with respect to carload service. "This is not to say," he says, "that the applicant may be expected to operate the branch at a loss indefinitely. If the traffic movement persists at the low levels of 1931-1933, there can be no alternative other than eventual abandonment."

CHICAGO & NORTH WESTERN.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $7,725,000 of first and refunding mortgage bonds, series E (already authenticated and delivered) and to pledge and repledge them as collateral security for loans ($2,500,000 arranged for with the Chase National Bank and the National City Bank, New York). Also to be pledged as security for

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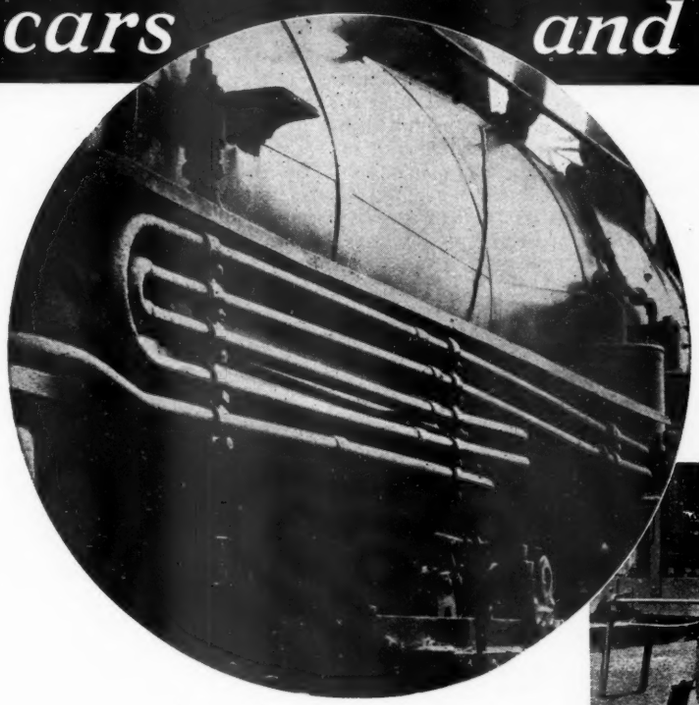
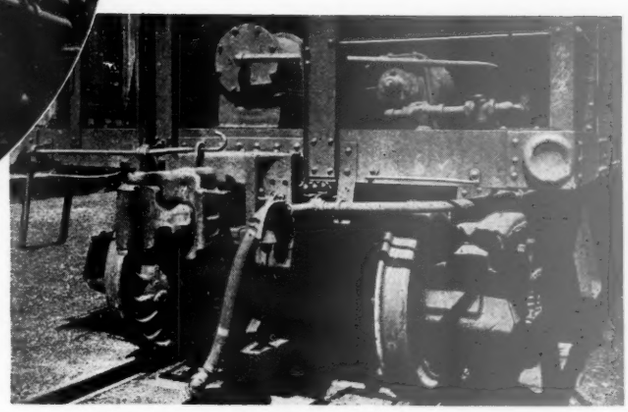
Here's one sure way to lower MAINTENANCE COSTS *of cars and locomotives*





Copper-steel pipe lasts longer where atmospheric corrosion is the determining factor. There can be no doubt about that. Numerous tests and extensive installations by leading users the country over have again and again confirmed the fact.

This fact is important to railways. For atmospheric corrosion is a natural enemy of railway equipment, including pipe. Alternate wetting and drying take place constantly, the metal gradually rusts away, the pipe is weakened and must be replaced. Delay and loss of locomotive or car service follows. Increased maintenance cost is the result.

NATIONAL Copper-Steel Pipe resists atmospheric corrosion. It offers a simple, economical, and effective way to minimize replacements and losses incidental thereto, and to lower maintenance costs.

Impressive and convincing records for this product have been established during its twenty years of use. Begin now to get the benefit of this outstanding advantage in pipe for railway service. Specify NATIONAL Copper-Steel Pipe—

The Original Copper-Steel Pipe

Look For The Green Color! National Copper-Steel Pipe is marked as follows: Black Pipe—Smaller sizes colored green. Larger sizes, two green stripes running lengthwise. Galvanized Pipe—All sizes, two green stripes running lengthwise.

NATIONAL TUBE COMPANY · Pittsburgh, Pa.
Subsidiary of United States Steel Corporation

NATIONAL
Copper-Steel
RUST RESISTING PIPE

this loan is the company's equity in $4,190,000 of general mortgage bonds; $8,228,000 of series C, $2,044,000 of series D and $1,855,000 of series E first and refunding mortgage bonds—these last-named securities now being pledged to Kuhn, Loeb & Co.

CHICAGO, BURLINGTON & QUINCY.—*Annual Report.*—The 1933 annual report of this company shows net income, after interest and other charges, of $5,598,024, as compared with net income of $1,502,816 in 1932. Selected items from the income statement follow:

	1933	1932	Increase or Decrease
Average Mileage Operated	9,237.41	9,261.96	−24.55
RAILWAY OPERATING REVENUES	$78,496,975	$79,543,629	−$1,046,654
Maintenance of way	8,561,684	9,576,465	−14,781
Maintenance of equipment	12,140,499	13,341,550	−1,201,051
Transportation	27,374,245	28,952,905	−1,578,660
TOTAL OPERATING EXPENSES	54,361,599	58,517,604	−4,156,005
Operating ratio	69.25	73.57	−4.32
NET REVENUE FROM OPERATIONS	24,135,376	21,026,025	+3,109,351
Railway tax accruals	6,918,697	8,148,156	−1,229,459
Railway operating income	17,196,225	12,846,693	+4,349,532
Hire of equipment—Net Dr.	1,375,888	1,223,759	+152,129
Joint facility rents—Net Dr.	2.329,111	2,030,437	+298,674
NET RAILWAY OPERATING INCOME	13,491,225	9,592,497	+3,898,728
Non-operating income	1,561,829	1,362,919	+198,910
GROSS INCOME	15,053,054	10,955,417	+4,097,637
Interest on funded debt	9,084,635	9,084,635	.....
TOTAL DEDUCTIONS FROM GROSS INCOME	9,455,031	9,452,601	+2,430
NET INCOME	$5,598,024	$1,502,816	+4,095,208

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Equipment Trust Certificates.*—The Interstate Commerce Commission has authorized this company to assume liability as guarantor of $1,716,000 of its 4 per cent equipment trust certificates and to pledge $258,000 of its first and refunding mortgage series A bonds as collateral security therefor.

GREAT NORTHERN. — *Abandonment of Operation.*—This road has been authorized by the Interstate Commerce Commission to abandon two sections of its line in Flathead county, Mont.,—one extending from Kalispell to Marion, 23 miles, and the other extending from Kalispell to Somers, 9.7 miles. The lines themselves will not be abandoned but will be leased for operation as a private carrier to the Somers Lumber Company, a wholly-owned subsidiary of the Great Northern.

GREAT NORTHERN.—*P. W. A. Loan.*—This company has applied to the Interstate Commerce Commission for authority for the expenditure of $5,125,000 which has been allotted to it by the Public Works Administration, including a recent allotment of $850,000 to make improvements to refrigerator cars. The company has also asked authority to issue $850,000 of notes and to pledge as collateral therefor $1,300,000 of general mortgage 6 per cent bonds.

ILLINOIS CENTRAL.—*Notes.*—This company has asked the holders of its $20,000,000 issue of 4½ per cent 3-year gold notes which mature on June 1 to accept 37½ per cent of the face value in cash and to extend the remaining 62½ per cent for a period of three years. The Reconstruction Finance Corporation has offered to loan the company the money to make the cash payment provided that substantially all of the note holders assent to the plan.

LOUISVILLE & NASHVILLE.—*Annual Report.*—The 1933 annual report of this company shows net income after interest and other charges, of $1,795,716, compared with a net deficit of $2,108,875 in 1932. Selected items from the income statement follow:

	1933	1932	Increase or Decrease
Average Mileage Operated	5,136.25	5,240.46	−104.21
RAILWAY OPERATING REVENUES	$65,656,958	$63,920,024	+$1,736,934
Maintenance of way	7,329,965	8,721,928	−1,391,963
Maintenance of equipment	14,433,617	13,283,719	+1,149,898
Transportation—Rail	23,013,826	23,782,560	−768,826
TOTAL OPERATING EXPENSES	50,248,571	51,614,492	−1,365,921
Operating ratio	76.53	80.75	−4.22
NET REVENUE FROM OPERATIONS	15,408,387	12,305,532	+3,102,855
Railway tax accruals	4,010,052	4,508,867	−498,815
Railway operating income	11,380,593	7,775,484	+3,605,109
Equipment rents—Net Cr.	1,211,089	1,129,989	+81,100
Joint facility rents—Net Dr.	733,994	627,383	+106,611
Non-operating income	2,834,989	2,984,176	−149,187
GROSS INCOME	14,215,582	10,759,661	+3,455,921
Rent for leased roads	315,327	296,223	+19,104
Interest on funded debt	10,225,996	10,355,864	−129,868
TOTAL DEDUCTIONS FROM GROSS INCOME	12,419,866	12,868,536	−448,670
NET INCOME	$1,795,716	*$2,108,875	+$3,904,591

* Deficit.

MOBILE & OHIO.—*Annual Report.*—The 1933 annual report of this road shows net deficit, after interest and other charges, of $1,549,892, as compared with a net deficit of $2,237,427 in 1932. Selected items from the income statement follow:

	1933	1932	Increase or Decrease
Average Mileage Operated	1,215.95	1,225.52	−9.57
RAILWAY OPERATING REVENUES	$8,161,996	$7,851,329	+310,667
Maintenance of way	1,034,886	1,184,223	−149,337
Maintenance of equipment	1,869,916	1,511,893	+358,023
Transportation	3,029,286	3,354,230	−324,944
TOTAL OPERATING EXPENSES	6,828,676	7,056,191	−227,515
Operating ratio	83.66	89.87	−6.21
NET REVENUE FROM OPERATIONS	1,333,320	795,139	+538,181
Railway tax accruals	407,484	579,217	−171,733
Equipment rents	378,428	352,283	+26,145
Joint facility rents	365,456	353,599	+11,857
OPERATING INCOME	177,587	*509,802	332,215
Non-operating income	86,234	106,826	−20,592
NET INCOME	263,821	*402,976	39,155
Interest on funded debt	1,478,169	1,463,441	+14,728
TOTAL DEDUCTIONS FROM GROSS INCOME	1,813,713	1,834,451	−20,738
DEFICIT AFTER CHARGES	$1,549,892	$2,237,427	−$687,535

* Deficit.

MINNEAPOLIS & ST. LOUIS.—*Receiver's Certificates.*—The Interstate Commerce Commission has authorized the receiver of this company to issue $973,000 of receiver's certificates to meet maturing certificates of like amount.

NORTHERN PACIFIC.—*Equipment Trust.*—This company has applied to the Interstate Commerce Commission for authority for an issue of $1,220,000 of equipment trust certificates in connection with its loan from the Public Works Administration for the purchase of ten locomotives.

NEW YORK, ONTARIO & WESTERN.—*Notes.*—This road has been authorized by the Interstate Commerce Commission to issue $235,000 of 4 per cent notes to be used in connection with the financing of loans from the Public Works Administration.

NEW YORK CENTRAL.—*Securities.*—The Interstate Commerce Commission has authorized this company to issue $59,911,100 of 10-year 6 per cent convertible secured bonds, $48,000,000 of 4 per cent consolidated mortgage bonds, series C, $6,000,000 of 3½ per cent mortgage bonds, 6,490,374.9 shares of no par capital stock and not exceeding $52,500,000 of promissory notes; to assume liability for $3,205,000 of refunding and improvement mortgage bonds, series D, of the Cleveland, Cincinnati, Chicago & St. Louis, $6,171,000 of refunding and improvement mortgage bonds, series A, of the Michigan Central and $4,500,000 of refunding bonds of 1934 of the Boston & Albany; and to pledge as collateral security for the convertible secured bonds $7,500,000 of refunding and improvement mortgage bonds, series C, and as collateral security for the promissory notes all or any part of $175,000,000 of refunding and improvement mortgage bonds, series C, together with the bonds of its subsidiaries for which it is permitted to assume liability as mentioned above. The convertible secured bonds are to be used to meet a maturity of $48,000,000 of 30-year 4 per cent debentures of the Hudson River Railroad and $4,500,000 of 25-year 4 per cent improvement bonds

Continued on next left-hand page

THERE is no use of looking for low fuel consumption unless the valves and cylinders on every locomotive are steam tight.

Low fuel consumption requires steam tight valves and cylinders — to insure steam tight operation for a minimum cost your locomotives need the wear resisting qualities built into HUNT-SPILLER *Air Furnace* GUN IRON.

HUNT-SPILLER *Air Furnace* GUN IRON brings to modern locomotive operation years of experience and results of well established Foundry and Metallurgical practice in the manufacture of a special material, the uniformity and quality of which is unsurpassed.

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Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

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Reg. U. S. Trade Mark
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Valve Bull Rings
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Hub Liners
Shoes and Wedges
Floating Rod Bushings

Parts Finished For Application

Dunbar Sectional Type Packing
Duplex Sectional Type Packing for Cylinders and Valves (Duplex Springs for Above Sectional Packing)
Cylinder Snap Rings
Valve Rings All Shapes

HUNT-SPILLER *Air Furnace* GUN IRON

of the Boston & Albany, together with certain maturing equipment trust obligations. The bonds are convertible into stock at $40 for each share without par value until May 10, 1937, and thereafter at $50 a share until the issue matures.

ST. LOUIS-SAN FRANCISCO.—The Interstate Commerce Commission has authorized this company and its trustees to abandon a line extending from Miller, Mo., to South Greenfield, 12.1 miles.

ST. LOUIS-SAN FRANCISCO.—*Interest payments.*—Following a petition filed by trustees of the St. Louis-San Francisco for authority to pay interest due on March 1 on obligations of the Kansas City, Memphis & Birmingham, Federal Judge Faris, on April 25, entered an order instructing creditors of the debtor railroad and other interested parties to show cause on May 12 why an order should not be entered authorizing payment of the semi-annual interest. The interest now past due is $66,460 on the general mortgage 4's and $88,637 on the 5 per cent income bonds.

TEXAS & PACIFIC.—*Annual Report.*—The 1933 annual report of this company shows net income, after interest and other charges, of $103,758, an increase of $11,048 over the 1932 figure of $92,710. Selected items from the income statement follow:

	1933	1932	Increase or Decrease
Average Mileage Operated	1,950.11	1,950.08	+.03
RAILWAY OPERATING REVENUES	$20,229,967	$21,339,398	-$1,109,431
Maintenance of way	1,999,463	2,046,834	-47,371
Maintenance of equipment	3,528,754	3,794,637	-265,883
Transportation—Rail	6,168,945	6,727,261	-558,316
TOTAL OPERATING EXPENSES	13,858,988	14,869,530	-1,010,542
Operating ratio	68.51	69.68	-1.17
NET REVENUE FROM OPERATIONS	6,370,980	6,469,868	-98,888
Railway tax accruals	1,189,302	1,201,705	-12,402
Railway operating income	5,166,974	5,257,749	-90,776
Equipment and Joint facility rents —Net Dr.	1,224,420	1,385,901	-161,481
NET RAILWAY OPERATING INCOME	3,942,553	3,871,848	+70,705
Non-operating income	439,207	512,408	-73,202
GROSS INCOME	4,381,760	4,384,257	-2,407
Interest on funded debt	4,184,837	4,211,242	-26,405
TOTAL DEDUCTIONS FROM GROSS INCOME	4,278,002	4,291,546	-13,545
NET INCOME	$103,758	$92,710	+$11,048

Dividends Declared

Reading.—First Preferred, $.50, quarterly, payable June 14 to holders of record May 24.

Average Prices of Stocks and of Bonds

	May 1	Last week	Last year
Average price of 20 representative railway stocks..	45.00	47.45	33.00
Average price of 20 representative railway bonds..	79.95	80.26	59.31

Railway Officers

EXECUTIVE

D. C. Jackling, chairman of the executive committee in charge of operations of the Nevada Northern, has been elected president, with headquarters as before at San Francisco, succeeding **S. R. Guggenheim.**

Henry A Koach, assistant chairman of the Railway Ticket Protective Bureau, with headquarters at Chicago, has been promoted to manager in charge of all bureau activities, effective May 1. Mr. Koach entered the service of the bureau at the time of its organization in February, 1903, as field representative. Later he was promoted to assistant to the chairman and in 1933, was made assistant chairman. The bureau is a subsidiary of the Central, Southeastern, Southwestern, Trunk Line, Transcontinental and Western passenger associations and the chairmen of each comprise the advisory board, C. A. Fox, chairman of the Central Passenger Association being chairman of the advisory board.

OPERATING

H. A. Iuler, assistant superintendent of the Clifton Forge division of the Chesapeake & Ohio, with headquarters at Ronceverte, W. Va., has been appointed assistant superintendent of the Ashland division, with headquarters at Ashland, Ky.

L. G. Waldrop has resumed his duties as superintendent of the Nashville terminals of the Louisville & Nashville, with headquarters at Nashville, Tenn. **J. P. Polk,** who has been acting superintendent during Mr. Waldrop's absence, has been appointed assistant superintendent of the Nashville terminals.

S. L. Fee, acting superintendent of the Aurora and LaCrosse divisions of the Chicago, Burlington & Quincy, with headquarters at Aurora, Ill., has been appointed superintendent of these divisions, with the same headquarters. **E. C. Hale,** acting assistant superintendent of the Wymore division, has been appointed assistant superintendent of this division, with headquarters as before at Wymore, Neb.

TRAFFIC

J. W. Booth, assistant freight traffic manager of the Seaboard Air Line, with headquarters at Tampa, Fla., has been given leave of absence for one year on account of sickness. **Sam Jones** has been appointed acting assistant freight traffic manager, with headquarters at Tampa, and will take over the duties of Mr. Booth during his absence. The position of general agent at St. Petersburg, Fla., has been abolished and **I. E. Morgan,** commercial agent at that point, will handle freight traffic matters in St. Petersburg territory, reporting to the acting assistant freight traffic manager at Tampa.

ENGINEERING AND SIGNALING

H. R. Clarke, engineer maintenance of way of the Chicago, Burlington & Quincy, with headquarters at Chicago, has had his jurisdiction extended over the Colorado & Southern, the Ft. Worth & Denver City and the Wichita Valley, all of which are controlled by the Burlington.

J. E. Teal, special engineer for the Chesapeake & Ohio, with headquarters at Richmond, Va., has been appointed transportation engineer, with the same headquarters, and will handle such duties as may be assigned to him by the general manager. Mr. Teal is a graduate of Purdue University, from which he received a B. S. degree in 1909 and C. E. degree in 1914. He is chairman of Committee XXI —Economics of Railway Operation of the American Railway Engineering Association.

MECHANICAL

Walter R. Lye, district superintendent of motive power of the New York Central (West of Buffalo), with headquarters at Collinwood, Ohio, has been appointed superintendent of shops of the same lines. The position formerly held by Mr. Lye has been abolished.

E. H. Burgess has been appointed inspector of air conditioning equipment for the New York Central, the Michigan Central, the Cleveland, Cincinnati, Chicago & St. Louis, the Indiana Harbor Belt, the Chicago River & Indiana and the Chicago Junction Railway, with headquarters at New York.

James H. Wilson, chief electrician of the Norfolk Southern with headquarters at Norfolk, Va., has been appointed chief mechanical inspector and assistant to superintendent of motive power, with the same headquarters. Mr. Wilson will assume the duties of the late **Herbert Smith Fentress,** general car inspector, who died on March 13.

R. M. Brown, superintendent of motive power of the New York Central at New York, has been appointed assistant to general superintendent of motive power of the New York Central, the Michigan Central and the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at New York. The position formerly held by Mr. Brown has been abolished.

J. D. Sheehan, master mechanic of the New York Central (West of Buffalo), with headquarters at Elkhart, Ind., has been appointed master mechanic of that road, the Michigan Central, the Cleveland, Cincinnati, Chicago & St. Louis, the Indiana Harbor Belt, the Chicago River & Indiana and the Chicago Junction Railway, with headquarters at Chicago.

C. Houser, foreman inspector of the Indiana Harbor Belt, with headquarters at Gibson, Ind., has been appointed general car foreman of the New York Central, the Michigan Central, the Cleveland, Cincinnati, Chicago & St. Louis, the Indiana

Continued on next left-hand page

Traction

Good TRACTION—It's a matter of dollars and cents to you—In more efficient hauling, more POWER, quicker stops, faster starts, added SAFETY, *lower cost per mile* for your trucks and buses.

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And under the tread is that patented pre-shrunk Supertwist Cord that stretches up to 61% more than other cords. That means STRENGTH, ENDURANCE —LONG LIFE.

You'll find those diamond-shaped blocks, too, on Goodyear Industrial Tires for power-driven and hand-operated trucks where they provide easier stopping and starting.

—And in construction and maintenance work Goodyear Wheelbarrow Tires with that same All-Weather tread roll easier, enable workman to haul larger loads—save time and money.

It's no wonder that wherever tires are used Goodyears are known as MONEY SAVERS.

Write Goodyear, Akron, Ohio, or Los Angeles, Calif., for further information.

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– bites down
– holds fast

GOODYEAR

TRUCK TIRES — *Money savers*

Harbor Belt, the Chicago River & Indiana, and the Chicago Junction Railway, with headquarters at Chicago.

J. A. Brossart, superintendent of rolling stock of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Indianapolis, Ind., has been appointed assistant to general superintendent of rolling stock, with jurisdiction over freight and passenger-car shop operations, of the New York Central, the Michigan Central and the C. C. C. & St. L., with headquarters at New York.

Joseph Chidley, superintendent of motive power of the New York Central (West of Buffalo) and the Ohio Central Lines, with headquarters at Cleveland, Ohio, has been appointed superintendent of equipment of these lines, with jurisdiction over the motive power and rolling stock departments (other than shop operation) at the same point. The position formerly held by Mr. Chidley has been abolished.

E. M. Wilcox, master car builder of the New York Central (Lines West of Buffalo), the Michigan Central, the Indiana Harbor Belt and the Chicago River & Indiana, has been appointed superintendent of equipment of these lines, the Cleveland, Cincinnati, Chicago & St. Louis and the Chicago Junction Railway, with jurisdiction over the motive power and rolling stock departments, with headquarters at Chicago. Mr. Wilcox's former position has been abolished.

J. F. Jennings has been appointed superintendent of equipment of the Michigan Central, at Detroit, Mich., with jurisdiction over the motive power and rolling stock departments (other than shop operation). Mr. Jennings was formerly superintendent of motive power of that road at the same point, which position has been abolished. **E. C. Richards,** superintendent of rolling stock at Detroit, has been appointed assistant superintendent of equipment, with the same headquarters and the position he formerly held has also been abolished.

J. W. Senger, superintendent of rolling stock for the New York Central (West of Buffalo) and the Ohio Central Lines, and **B. F. Kuhn,** assistant superintendent of motive power of these lines, have been appointed assistant superintendents of equipment for the same lines, with headquarters at Cleveland, Ohio. **W. J. O'Brien,** district superintendent of motive power and rolling stock of the Ohio Central Lines, with headquarters at Columbus, Ohio, has been appointed district assistant superintendent of equipment of these lines and the New York Central, with the same headquarters. The positions formerly held by Messrs. Senger, Kuhn and O'Brien have been abolished.

A. E. Calkins, superintendent of rolling stock for the New York Central Lines, Buffalo and East, with headquarters at New York, has been appointed superintendent of equipment with jurisdiction over the motive power and rolling stock departments (other than shop operation), with the same headquarters. **M. W. Hassett,** assistant superintendent of motive power, with headquarters at New York, has been appointed assistant superintendent of equipment, with the same headquarters. The positions of superintendent motive power and superintendent rolling stock have been abolished. These changes became effective May 1.

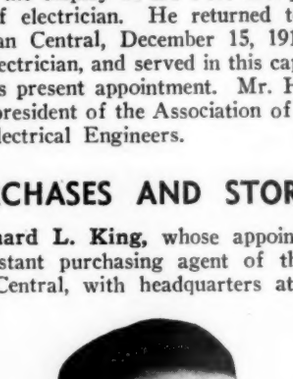
Frank J. Hill has been appointed general supervisor, car electrical equipment, New York Central Lines, effective April 16, with headquarters in New York City. Mr. Hill was born June 4, 1878, and entered railway service July 8, 1904, on the Michigan Central, as foreman of electricians,

F. J. Hill

West Detroit car shops He was subsequently appointed assistant chief electrician on the Michigan Central and held this position until April 10, 1910, when he entered the employ of the Pere Marquette, as chief electrician. He returned to the Michigan Central, December 15, 1913, as chief electrician, and served in this capacity until his present appointment. Mr. Hill is a past president of the Association of Railway Electrical Engineers.

PURCHASES AND STORES

Leonard L. King, whose appointment as assistant purchasing agent of the Illinois Central, with headquarters at Chi-



Leonard L. King

cago, was noted in the *Railway Age* of April 28, has been connected with this company for 33 years. He first entered the service of the Illinois Central in 1901 in the roadway department at Newton, Ill. After serving as assistant foreman, supervisor's clerk and engineering apprentice at Newton and Mattoon, Ill., he was sent to Memphis, Tenn., as an assistant foreman in July, 1907. In the following year he was appointed assistant division storekeeper at McComb, Miss., and on May 23, 1910, he was promoted to division storekeeper at East St. Louis, Ill., later being transferred to Freeport, Ill., Waterloo, Iowa, and Memphis, Tenn. He was further advanced to assistant to the purchasing agent at Chicago on March 1, 1919, which position he held until his recent appointment.

OBITUARY

Herbert Smith Fentress, general car inspector of the Norfolk Southern, with headquarters at Norfolk, Va., died of a cerebral hemorrhage at his home in Norfolk, on March 13, at the age of 68.

A. O. Wilson, division engineer on the Seaboard Air Line, with headquarters at Savannah, Ga., died at that point on April 17, following a short illness. Mr. Wilson had been with the Seaboard Air Line for 27 years.

Francis C. Coley, passenger traffic manager of the New York, New Haven & Hartford and the New England Steamship Company, with headquarters in New Haven, Conn., died at his home in that city of a heart attack on May 1, at the age of 68. Mr. Coley was born in Monroe, Conn., on January 15, 1866. He entered railway service with the New Haven as stenographer in 1888. The following year he was advanced to the position of chief clerk and in 1905 he became assistant general passenger agent. In 1922 he was appointed general passenger agent. Mr. Coley was promoted to the position of passenger traffic manager for the road in 1924, the position he held at the time of his death.

Richard A. Jackson, who retired as vice-president and general counsel of the Great Northern on November 1, 1916, died in Ormond Beach, Fla., on April 29. He was born on September 5, 1858, at Richmond, Ind., and was educated at Earlham college and the University of Virginia. In 1902 Mr. Jackson entered the service of the Chicago, Rock Island & Pacific as general attorney, and in November, 1904, he was promoted to first vice-president and general solicitor, which position he held until June, 1909, when he was also made president of the Rock Island Company, vice-president of the Chicago & Eastern Illinois and the Evansville & Terre Haute and general counsel of the St. Louis-San Francisco. He held these positions until January 1, 1910, when he was appointed vice-president and general counsel of the Chicago, Rock Island & Pacific, which position he held until March, 1910, when he became general counsel of the Great Northern. In October of the same year Mr. Jackson was appointed also vice-president of the Great Northern. He retired from active service six years later.

Thirty-ninth Annual Report of the Atchison, Topeka & Santa Fe Railway Company

OFFICE OF
THE ATCHISON, TOPEKA AND SANTA FE RAILWAY SYSTEM,
120 Broadway, New York City.

March 6, 1934.

To the Stockholders:

Your Directors submit the following report for the fiscal year January 1, 1933, to December 31, 1933, inclusive.

INCOME AND PROFIT AND LOSS STATEMENT

The following is a summary of the transactions of the System for the years ending December 31, 1932 and 1933:

	1932	1933
Operating revenues	$133,133,537.52	$119,826,436.87
Operating expenses	101,918,322.59	93,803,317.97
Net operating revenues	$31,215,214.93	$26,023,118.90
Railway tax accruals	12,824,969.82	11,398,972.92
Uncollectible railway revenues	37,568.13	48,950.57
Equipment and joint facility rents	692,883.53	613,435.00
Net railway operating income	$17,659,793.45	$13,961,760.41
Other income	3,239,958.18	2,996,066.54
Gross income	$20,899,751.63	$16,957,826.95
Miscellaneous tax accruals	75,992.78	74,633.51
Rent for leased roads and other charges	474,438.27	380,893.52
	$20,349,320.58	$16,502,299.92
Interest on bonds, including accrued interest on adjustment bonds	12,804,313.13	12,803,628.74
Net corporate income (representing amount available for dividends and surplus)	$7,545,007.45	$3,698,671.18
Surplus to credit of Profit and Loss, December 31, 1932		314,528,509.36
Total		$318,227,180.54
Appropriations for the year:		
DIVIDENDS ON PREFERRED STOCK—		
No. 70 (1.5%) paid August 1, 1933	$1,862,592.00	
No. 71 (3.3%) paid February 1, 1934	4,097,702.40	$5,960,294.40
California-Arizona Lines Bonds Sinking Fund		7,628.75
S. F. & S. J. V. Ry. Co. Bonds Sinking Fund		4,104.65 5,972,027.80
		$312,255,152.74
Surplus appropriated for investment in physical property	$23,628.11	
Loss on retired road and equipment	2,458,533.17	
Miscellaneous debits—Net	468,050.40	$2,950,211.68
Donations in connection with industry tracks, etc.		23,628.11 2,926,583.57
Surplus to credit of Profit and Loss December 31, 1933		$309,328,569.17

COMPARISON OF OPERATING RESULTS

The following is a statement of revenues and expenses of the System for the year ending December 31, 1933, in comparison with the previous year:

	Year ending Dec. 31, 1933	Year ending Dec. 31, 1932	Increase or *Decrease*
OPERATING REVENUES:			
Freight	$ 97,426,943.40	$107,400,213.35	*$9,973,269.95*
Passenger	12,202,075.73	14,520,805.52	*2,318,729.79*
Mail, express, and miscellaneous	10,197,417.74	11,212,518.65	*1,015,100.91*
Total operating revenues	$119,826,436.87	$133,133,537.52	*$13,307,100.65*
OPERATING EXPENSES:			
Maintenance of way and structures	$ 15,417,927.63	$ 15,342,513.57	$ 75,414.06
Maintenance of equipment	27,849,272.62	31,536,603.77	*3,687,331.15*
Traffic	4,482,381.36	4,920,729.75	*438,348.39*
Transportation—Rail line	40,596,814.74	43,997,002.77	*3,400,188.03*
Miscellaneous operations	62,595.41	79,305.64	*16,710.23*
General	5,542,192.79	5,962,474.43	*420,281.64*
Transportation for investment—Cr.	*147,866.58*	79,692.66	*227,559.24*
Total operating expenses	$ 93,803,317.97	$101,918,322.59	$ *8,115,004.62*
Net operating revenue	$ 26,023,118.90	$ 31,215,214.93	$ *5,192,096.03*
Railway tax accruals	11,398,972.92	12,824,969.82	*1,425,996.90*
Uncollectible railway revenues	$48,950.57	$37,568.13	$11,382.44
Railway operating income	$ 14,575,195.41	$ 18,352,676.98	$ *3,777,481.57*
Equipment rents—Net—Cr.	*77,611.56*	*43,958.88*	33,652.68
Joint facility rents—Net—Dr.	691,046.56	736,842.41	*45,795.85*
Net railway operating income	$ 13,961,760.41	$ 17,659,793.45	$ *3,698,033.04*

TREASURY

Neither this Company nor any of its affiliated railway companies has any notes or bills payable outstanding.

The Company held in its treasury at December 31, 1933, $27,039,560.89 cash, and in addition owned $23,155,400.00 of United States Government securities which are carried at cost of $23,505,573.97 in the general balance sheet.

TAXES

Federal, state, local, and miscellaneous railway tax accruals for the year 1933 aggregate $11,398,972.92, a decrease of $1,425,996.90 compared with the year 1932. A comparison of these accruals for the two years is presented in the following table:

	1933	1932	Increase or *Decrease*
FEDERAL TAXES:			
Income		$ 798,675.30	$ *798,675.30*
Capital stock	$ 531,495.00		531,495.00
Miscellaneous	21,599.94	9,069.25	12,530.69
Total	$ 553,094.94	$ 807,744.55	$ *254,649.61*
STATE, LOCAL, AND MISCELLANEOUS	10,845,877.98	12,017,225.27	*1,171,347.29*
Grand total	$11,398,972.92	$12,824,969.82	$ *1,425,996.90*

GENERAL

The holders of your company's preferred stock are entitled to non-cumulative dividends in each fiscal year ending June 30th, at such rate not exceeding 5 per cent per annum as shall be declared by the Board of Directors, in preference and priority to any payment in or for such fiscal year of any dividend on the common stock, but only from undivided net profits when and as determined by the Board. Largely as a result of the depression and to some extent increased water, highway, and airway competition, there was a decline in the gross revenues including other income of the company from $273,866,455 in the calendar year 1929 to $123,681,273 in the calendar year 1933, a decrease of 54.8 per cent, and in net income before bond interest from $73,803,682 to $16,502,300, a decrease of 77.6 per cent. Notwithstanding this decline the 5 per cent non-cumulative preferred dividend was earned and paid in full up to and including the fiscal year ending June 30, 1932, and for the fiscal year ending June 30, 1933, $4.80 per share was earned and paid on such preferred.

The properties of your company, notwithstanding that every justifiable economy has been effected, have been well maintained and are in sound physical condition and can handle an increase in business without a proportionate increase in expenses, and net earnings should increase quite rapidly as business improves.

Neither your company nor any of its affiliated railway companies has any notes or bills outstanding, and your company during the depression has not borrowed any money from any source whatsoever or deferred the payment of any of its bills.

That improvement in volume of traffic and earnings may reasonably be expected in 1934 is indicated by the fact that while the carloadings for 1933 decreased 69,395 cars, being 5.6 per cent below 1932, there were small gains in November and December, 1933, over the corresponding months in 1932, and larger increases in January and February of this year, the latest period for which the information is available. Gross freight earnings per car were $3.37 less in 1933 than in 1932.

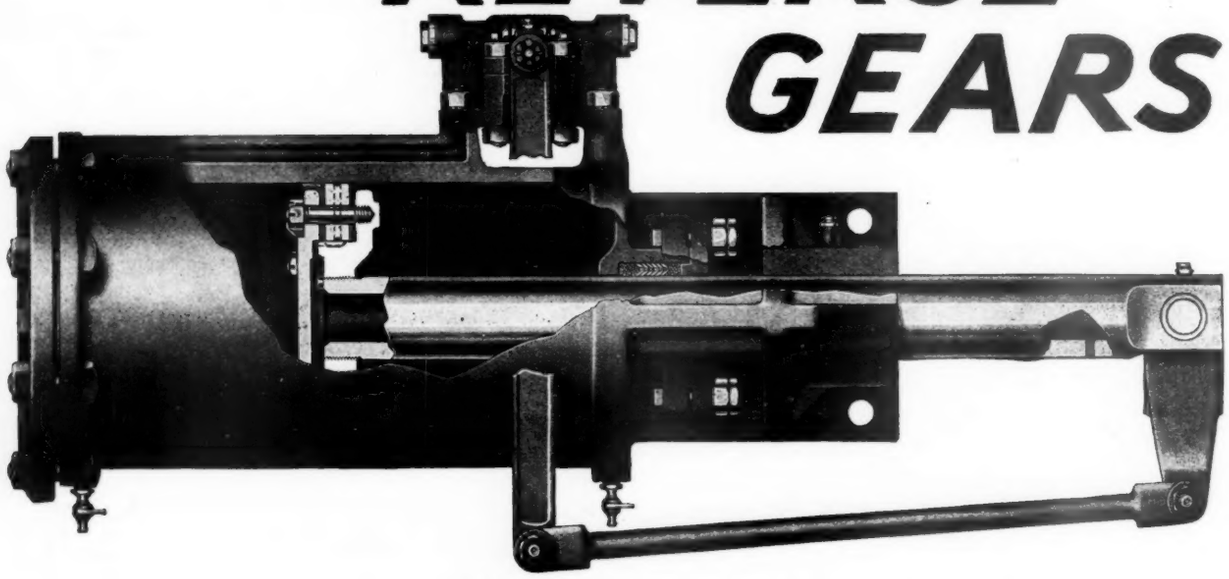
During 1933 your company paid out in pensions to its retired employes $986,022.82, there being 1,872 pensioners on the roll at December 31, 1933, compared with $920,970.00 paid in 1932 and 1,781 pensioners, December 31, 1932. Pensioners retired during 1933 have an average service of 28 years with your company and an average age of 64 years. During 1933, death benefits were paid in 408 cases, amounting to $420,884.54, compared with 503 cases, amounting to $540,479.89 in 1932. The average length of service in all cases in which death benefits were paid in 1933 was 20 years while in 1932 it was 19 years.

Your Directors take pleasure in again expressing their appreciation of faithful and efficient service rendered by officers and employes.

S. T. BLEDSOE, *President.*

[Advertisement]

POWER REVERSE GEARS



That Insure Low Maintenance–

cost and long trouble-free service. These desirable advantages are offered with BARCO Power Reverse Gears through exclusive features.

OUTBOARD PISTON ROD BEARING AND GUIDE. This guide is cast integral with the cylinder and bolted direct to the reverse gear bracket. It eliminates any weaving action of the piston rod on the piston rod packing and piston packing cups thus greatly increasing their service life. The bearing is always in perfect alignment as it does not have to be disturbed during repacking.

DUAL CONTROL VALVE. The combination of small rotary admission valve keyed to the shaft with poppet valves for exhaust provides exceptionally close adjustment and maintains the point of cut-off selected. Centering of valve after each operation is assured. The entire valve is easily removed from reverse gear for repairs or exchange.

All other parts are built and designed to the latest and best power reverse gear practice, including the hollow trunk piston rod.

Interior BARCO Dual Control Valve

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